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Wayne Bartholomew

Poverty in Indiana

Philip West

Indiana and the Pacific Rim: Opportunities and Challenges

In this issue . . .

Poverty, wealth, and economic development are all closely interrelated. The examination of the 1980 Census data that Wayne Bartholomew provides in this issue offers a statistical view of poverty in Indiana's counties at that time. Readers are cautioned to consider the data most carefully before drawing policy conclusions. The reduction of poverty remains a matter of national and local concern, but the way to that goal is filled with the brambles of tried and nearly forgotten programs.

One route from conditions that are less than desirable is improved trade and investment opportunities. Philip West invites Hoosier readers to look west to the Far East. Beyond the Pacific horizon are new economic forces of major importance to Indiana's industrial and agricultural capabilities. The sun will continue to rise from the Atlantic, but we may wish to follow its path to the potentials of the Pacific Rim.

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Poverty in Indiana

Wayne Bartholomew

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According to the 1980 census, 11.7% of the U.S. population in 1979 had incomes that placed them below the poverty level. In 1979 a family of four was classified as being in poverty if its income was less than $7,386. In Indiana 9.7% of the state's population were in poverty. Even though Indiana's incidence of poverty was significantly below the national level, it was still true that almost one in every ten Hoosiers was living in poverty in 1979.

National data show that the proportion of the population living in poverty increased in 1980, 1981, and 1982. In 1982 it was 15%. It is not possible to be sure that the incidence of poverty increased in Indiana exactly as it did in the nation, but, given the economic conditions of the times, it seems reasonable to assume that Indiana's poverty rate increased during the early years of this decade. This article will examine some of the characteristics of poverty in Indiana, attempting to identify some of its important factors.

Where Do Indiana's Poor Live?

The proportion of the state's population that is in poverty is not evenly distributed throughout the state. The incidence of poverty for various groups is shown in **Table 1.**

The incidence of poverty varies dramatically among the various counties of Indiana. Hendricks County had only 4% of its population in poverty in 1979, whereas Crawford County had 18.8% of its population in poverty. **Figure 1** shows the proportion of the population in poverty in counties where that population exceeded 10%. It is clear from Figure 1 that, while counties with double-digit rates of poverty are located throughout the state, they tend to be concentrated in the southern half of Indiana.

Explanation of Regression Equation

In an attempt to identify those factors that would explain the different rates of poverty, a series of regression equations was estimated using cross-sectional data from 92 counties of Indiana. All the data was collected from the 1980 census.

The poverty rate is a function of:

- PFNW, proportion of families with no one working;
- PWYR, proportion of persons 16 years of age and older who worked 50 to 52 weeks of the year;
- PB, proportion of blacks in the population;
- PLF, proportion of people living on farms; and
- PEEL, proportion of persons 25 years of age and older who had completed eight or less years of school.

The statistical analysis yielded the following results, where 18.77 is a constant and the t statistic appears in parentheses below the regression coefficients. The regression coefficient for each of the five independent variables is statistically significant at the 1% level.

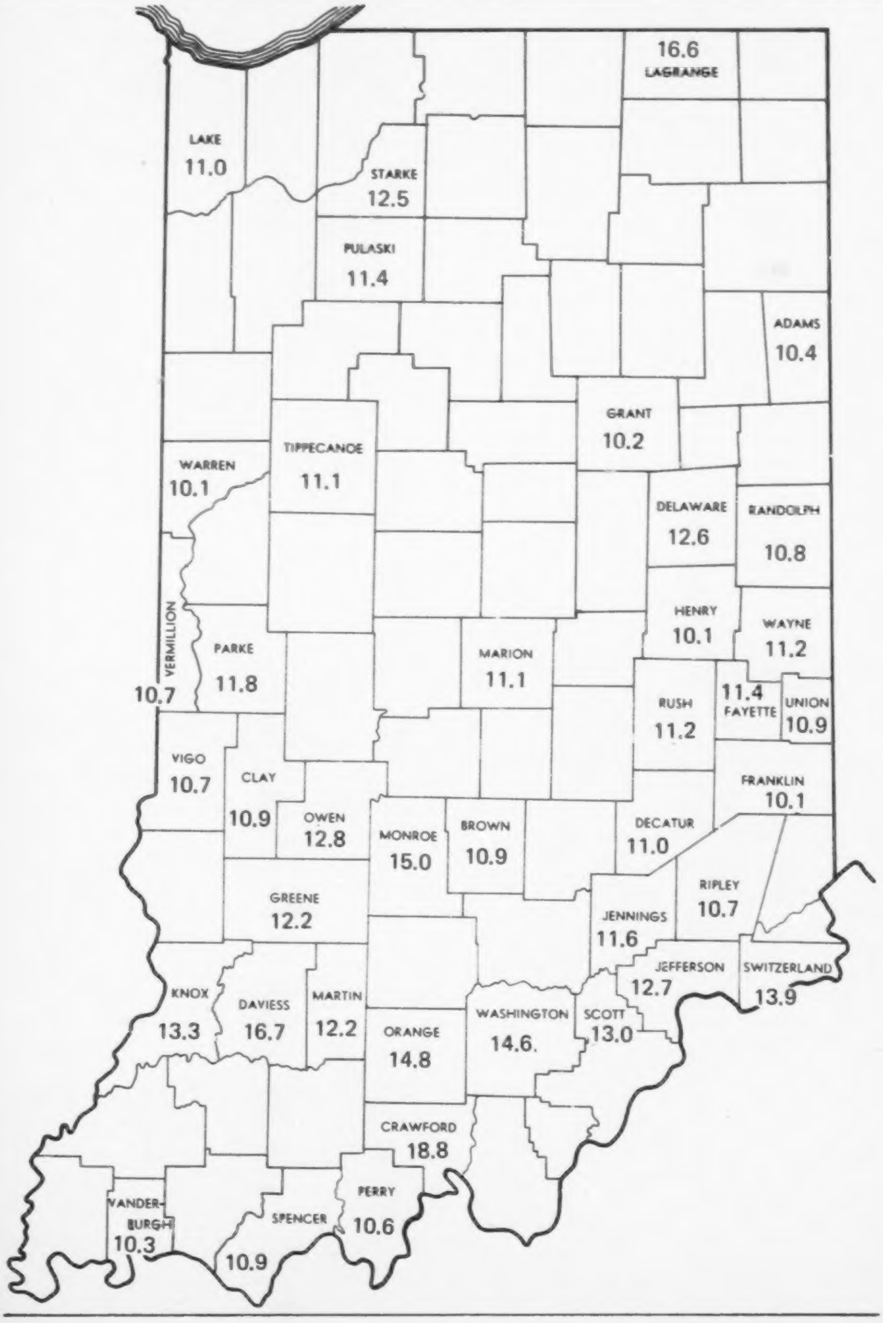
Table 1
Categories of Indiana Population in Poverty in 1979.

Category		*% in poverty*
Families		7.3%
Unrelated individuals		23.5
Persons:	Total	9.7
	Rural	8.0
	Urban	10.6
	White	8.4
	Black	24.1
	Spanish origin	14.9

Source: U.S. Bureau of the Census, Census of Population: 1980, *General Social and Economic Characteristics.*

Figure 1

Indiana Counties with Double-Digit Poverty Rates in 1979


16.6
LAGRANGE
LAKE
11.0
STARKE
12.5
PULASKI
11.4
ADAMS
10.4
GRANT
10.2
WARREN
10.1
TIPPECANOE
11.1
DELAWARE
12.6
RANDOLPH
10.8
VERMILLION
10.7
PARKE
11.8
HENRY
10.1
WAYNE
11.2
MARION
11.1
RUSH
11.2
11.4
FAYETTE
UNION
10.9
VIGO
10.7
CLAY
10.9
OWEN
12.8
MONROE
15.0
BROWN
10.9
DECATUR
11.0
FRANKLIN
10.1
GREENE
12.2
JENNINGS
11.6
RIPLEY
10.7
JEFFERSON
12.7
SWITZERLAND
13.9
KNOX
13.3
DAVIESS
16.7
MARTIN
12.2
ORANGE
14.8
WASHINGTON
14.6
SCOTT
13.0
CRAWFORD
18.8
PERRY
10.6
VANDER-
BURGH
10.3
SPENCER
10.9

$$\begin{array}{l} PR = \underset{(6.6)}{18.77} + \underset{(4.0)}{.3387PFNW} - \underset{(6.8)}{.2929PWYR} \\ \quad + \underset{(3.2)}{.1515PB} + \underset{(2.7)}{.0822PLF} + \underset{(5.5)}{.1929PEEL} \end{array}$$

The dependent variable is the percentage of persons living in poverty in 1979 (PR). The first independent variable is the proportion of families who had no one working in 1979 (PFNW). As one would expect, the relation between this variable and the dependent variable is positive. As the proportion of families with no one working rises, so does the proportion of the population in poverty. The coefficient of .3387 indicates that, for each 1% increase in the proportion of families with no workers, the poverty rate *increases* by about one-third of 1%.

The second independent variable, PWYR, is also a variable that measures the relationship between work and poverty. PWYR is the percentage of persons 16 years of age and older who were in the labor force and worked 50 to 52 weeks in 1979. The coefficient of -.2929 for PWYR indicates that, for each 1% increase in the proportion of persons 16 years of age and older who worked year-round in 1979, the proportion of people in poverty *fell* by about three-tenths of 1%.

As Table 1 shows, the incidence of poverty is much higher for black persons than for whites. The third independent variable, PB, measures the effect of the proportion of blacks in the population on the proportion of the population in poverty. The coefficient of .1515 indicates that, for each 1% increase in the proportion of the population who is black, the percentage of the population classified as living in poverty increases by about one-seventh of 1%.

According to Table 1, the incidence of poverty was lower for people living in rural areas than for those living in urban areas. However, when one examines the relationship between the rate of poverty and the proportion of people living on farms rather than just residing in a rural area, the relationship is positive. PLF, the fourth independent variable, is the percentage of the population who were living on farms in 1979. The positive coefficient of .0822 tells us that, for each 1% increase in the number of people living on farms in Indiana, the poverty rate increased by about eight-hundredths of 1%.

The fifth independent variable, PEEL, is the percentage of persons 25 years of age and older who had completed eight or less years of school. The regression coefficient of .1929 indicates that, for each 1% increase in the proportion of the population 25 years old or older who had completed eight years of school or less, the rate of poverty increased by slightly less than one-fifth of 1%.

The adjusted coefficient of determination, R^2, was .695. Thus, this regression equation explained almost 70 percent of the variation in the rates of poverty among the 92 counties in Indiana in 1979. The F statistic was 42.4, which indicates that the variation in the rate of poverty that this regression equation was able to explain is statistically significant at the 1% level.

The accompanying box points out some possible interrelationships among the independent variables in this study. These "Yes, but . . . " caveats indicate areas where it might be possible to draw incorrect conclusions if data are analyzed in splendid isolation.

Policy Implications

Based strictly on the size of the coefficients in the regression equation, it would appear that the largest reduction in poverty would come by increasing the proportion of families with at least one member in the labor force. Examples of national, state, or local policies that would reduce poverty in Indiana are those that result in more jobs and/or job retraining programs for the unemployed.

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Other Variables That Were Considered

The following are additional independent variables that were considered in formulating the poverty model. Because a high level of statistical significance could not be shown or because of other statistical considerations, these were discarded.

Number of persons per household.
Number of persons per family.
Percent of persons 25 years and over who are high school graduates.
Mean weeks of unemployment in 1979.
Percent of all persons under 20 and over 64.
Percent of families with a female householder, no husband present, with own children under 18 years.
Percent of persons 18 years and over who speak a language other than English at home.
Percent of noninstitutional population between 16 and 64 years with a work disability that prevents them from working.
Percent of persons 16 years and over who are employed.
Percent of persons 16 years and over who were in the labor force in 1979 and usually worked 35 or more hours per week.

A Word of Caution

Working with aggregate data, numerous interrelationships between the variables being studied may be hidden. If the interrelationships are not recognized, it is possible to draw incorrect conclusions. One type of interrelationship is the intercorrelation of the independent variables, which does not seem to be a problem in the poverty model in this article. The simple correlation coefficients between the independent variables were .54 or smaller. Even though there seems to be no problem, the following possible interrelationships suggest caution in using the results.

- Four of the counties with double-digit poverty rates in 1979 have large residential colleges or universities. It is possible that the high poverty rate in these counties is at least in part a reflection of large student populations. To the extent that the high poverty rates are due to college students, the rates do not indicate a social problem.

- This model of poverty in Indiana implies that the incidence of poverty can be lowered by decreasing the number of families with no one working. Programs designed to retrain unemployed workers, increase worker mobility, or increase the employability of unemployed workers in other ways would undoubtedly reduce the number of families with no one working and therefore decrease poverty. However, some of these families with no workers may very well be retired people or individuals with disabilities that prevent their working. Policies designed to reduce poverty by increasing employment opportunities would decline in effectiveness with the increase in the proportion of families where, because of old age or disabilities, there were no potential workers.

- The poverty rate is based on cash incomes. Farm families are likely to have larger noncash incomes than most urban families. Therefore, the variable showing the positive association between the percentage of people living on farms and poverty may overstate the true extent of poverty for farm families. For example, Lagrange County had one of the highest poverty rates in 1979. To the extent that the high poverty rate in this county is due to a large number of Amish farm families, it does not have the same implications that it would for the other counties in Indiana.

- One might expect that the percentage of the population with eight years or less of education would be higher for the elderly than for the entire population. To the extent that low educational attainment is concentrated among the elderly, programs designed to reduce poverty by increasing the level of education in Indiana are likely to be ineffective.

Table 2

Changes in Poverty Percentages if State Averages Prevailed (Counties with 10% or More in Poverty in 1979)

County	*PFNW*[1]	*PWYR*[2]	*PB*[3]	*PLF*[4]	*PEEL*[5]
Adams	.34	.56	1.14	-1.15	.26
Brown	-.98	-.64	1.12	.02	.18
Clay	-1.02	1.00	1.08	-.37	-.23
Crawford	-1.88	-1.58	1.12	-.34	-3.68
Daviess	-1.83	.01	1.08	-1.08	-1.06
Decatur	-.11	1.36	1.14	-.91	-.90
Delaware	-.33	-1.87	.24	.19	.22
Fayette	-.25	-1.14	.89	-.09	-1.14
Franklin	.48	.15	1.14	-.78	-2.09
Grant	-.04	-.15	.15	.05	-.10
Greene	-2.05	-.23	1.14	-.37	-1.05
Henry	-.86	-1.12	1.00	-.22	-.88
Jay	-.23	.83	1.11	-.92	-.68
Jefferson	.05	-.74	.94	-.38	-.52
Jennings	-.05	.45	1.00	-.46	-1.24
Knox	-1.38	-.81	.97	-.23	-.67
LaGrange	.39	-.21	1.14	-1.73	-2.18
Lake	-.48	.44	-2.51	.38	-.30
Marion	.02	1.01	-1.94	.41	.35
Martin	-.19	.04	1.12	-.48	-1.61
Monroe	.08	-4.77	.74	.29	.92
Orange	-.68	-1.54	.95	-.37	-2.26
Owen	-1.09	-.43	1.11	-.64	-.98
Parke	-.84	.42	1.09	-.78	.46
Perry	-.97	.89	1.12	-.17	-2.59
Pulaski	-.70	.61	1.08	-1.61	-.75
Randolph	.16	-.31	1.11	-.89	.19
Ripley	-.57	1.03	1.14	-.86	-1.91
Rush	-.29	.80	1.02	-1.28	-.32
Scott	-1.30	-.80	1.14	-.10	-3.21
Spencer	.02	-.25	1.05	-.88	-1.54
Starke	-1.28	-1.08	1.12	-.37	-1.87
Sullivan	-1.41	-.49	1.12	-.56	-.14
Switzerland	-1.38	-.89	1.11	-1.92	-2.49
Tippecanoe	.96	-3.35	.88	.19	1.15
Union	.38	.45	1.09	-1.14	-.35
Vanderburgh	-.71	.95	.06	.36	-.65
Vermillion	-1.49	.31	1.12	-.19	-1.23
Vigo	-.63	-1.15	.30	.23	.35
Warren	.61	.22	1.14	-1.45	-.25
Washington	-.88	-.12	1.14	-.89	-2.52
Wayne	-.46	.47	.36	.05	.07
Number with neg. coefficient	31	22	2	32	33
Average % reduction	-.87	-1.08	-2.22	-.74	-1.26

1. Percentage of families with no one working in 1979.
2. Percentage of persons 16+ in labor force working 50-52 weeks.
3. Percentage of blacks.
4. Percentage of people living on farms.
5. Percentage of persons 25+ with eight years of education or less.

Educational attainment is the next area on which to concentrate. Because the regression results indicate that the rate of poverty increases when people have eight years or less of formal education, any successful attempt to reduce the dropout rate in Indiana's high schools would be an important step in reducing poverty in Indiana. Regression equations (not contained in this article) that included an independent variable for the proportion of the population graduating from high school indicated that graduating from high school was associated with a reduced rate of poverty.

> *". . . any successful attempt to reduce the dropout rate in Indiana's high schools would be an important step in reducing poverty in Indiana."*

The positive statistically significant regression coefficient for blacks would suggest that policies designed to eliminate unequal employment opportunities for black workers would have significant positive effects in reducing poverty.

Finally, because living on a farm is positively associated with poverty in Indiana, poverty would be expected to rise during periods when the farm sector is experiencing economic pressures. Policies targeted to farmers, especially small farmers, would have a small positive effect in reducing poverty.

There is a second way of examining how various methods of reducing poverty would affect the rate of poverty in the 42 counties that had 10% or more of their population in poverty in 1979. The regression coefficients can be used to calculate the change in the rate of poverty for each of the 42 counties if each has the same characteristics as the state with respect to the five independent variables specified in the regression equation. **Table 2** presents the results of these calculations.

A negative coefficient in Table 2 indicates that, if the population for a particular county were to change, making it equal to the average for Indiana, it would reduce the incidence of poverty in that county. For example, the -1.15 coefficient for Adams

County indicates that, if the proportion of people living on farms in Adams County were the same as for Indiana as a whole, poverty in Adams County would be reduced by 1.15%.

Table 2 indicates that the greatest reduction in poverty in the high-poverty counties of Indiana would come from reducing the proportion of the population with eight years or less of formal education to the same level as the state average. If the 42 high-poverty counties in Indiana all had the same proportion of their population with eight or less years of education as does the state of Indiana as a whole, 33 of them would experience a reduction in the incidence of poverty. Furthermore, the average reduction in the poverty rate for these 33 counties would be 1.26%.

> *". . . the greatest reduction in poverty in the high-poverty counties of Indiana would come from reducing the proportion of the population with eight years or less of formal education to the same level as the state average."*

In 32 of the 42 high-poverty counties, poverty rates would decline by .74% if the proportion of their populations living on farms were reduced to the state average. Thirty-one of the high-poverty counties would experience an average decrease of .87% in the incidence of poverty if the proportion of families with no worker were reduced to the state level. Slightly more than half of the counties with double-digit poverty levels would have their poverty rates decline by an average of 1.08% if the proportion of their population aged 16 years and older who worked 50 to 52 weeks were increased to the state level. Only two counties, Lake and Marion, experience high-poverty levels associated with having a larger proportion of black population than the state average.

To summarize, policies designed to increase the proportion of people graduating from high school, to increase availability of jobs, and to aid the farmers who are unable to earn incomes above the poverty level appear to be the most promising methods of reducing poverty in Indiana. ☐

Indiana and the Pacific Rim: Opportunities and Challenges

Philip West

Philip West is director of the East Asian Studies Center at Indiana University, Bloomington, and an associate professor of history and of East Asian languages and cultures. This article is based on a talk given at the Workshop on Indiana and the Pacific Rim, April 10, 1985, at Indiana University—Bloomington. A revised version was delivered at the World Trade Club in Indianapolis on September 18.

Although international trade is thousands of years old, its role in spurring tremendous growth in recent years in the economies of the world and of our state is not well enough known. In 1970 American two-way trade with the rest of the world was approximately $80 billion. By 1984 it had grown to almost $500 billion, a sixfold increase. The increase is similar over the same years for the state of Indiana.

The countries that have fueled this rapid increase in trade lie in the northern arc of the Pacific Ocean. These include the United States, which is the world's largest market, Japan, Taiwan, Korea, China, and other Asian Pacific nations that are the fastest growing economies in the world. The dynamic Asian countries have produced a decisive shift in world trade patterns in the direction of the Pacific (see **Table 1**). These changes are forcing us to adjust our perceptions of foreign trade, our perceptions of Asian neighbors whose cultures are very different from our own, and our perceptions of ourselves. We have made some progress in making these adjustments, but there is still a long way to go.

In recent months the louder cries for protectionism have drowned out the opportunities that knock within the Pacific Rim. Protectionism threatens to overshadow the benefits of international trade. The American trade deficit, which this year may run as high as $150 billion, has stolen center stage in the discussions on trade. Protectionist cries are directed particularly against Japan, but our trade deficit with Taiwan and Hong Kong, in proportion to total trade, is much larger. The deficit is in fact a problem in 1985 with all our Asian Pacific trading partners. The important questions we need to be asking are, What are the causes of this trade deficit, and how can we come up with more than short-term solutions?

The wave of protectionist sentiment which has swept through Congress, if translated into law, would threaten the system of international trade as we know it. It is a system that, despite the burden of our current trade deficit, has helped more than it has harmed the American economy. It is a system, furthermore, that in recent weeks has allowed market forces to improve the performance of American exports.

If protectionism were to win the day, it would hurt the European economies, which generally are in greater difficulty than we are, and it would wipe out the delicate trust in trade across the Atlantic. If the Jenkins bill on textiles, which currently has 350 cosponsors in both houses, were put into effect, it would provide some temporary relief to the deficit and to unemployment in this part of the economy. If enacted, this bill likely would reduce American imports of textiles from Japan by 25%, from China by 60%, and from Indonesia by 89%.[1]

[1] *Far Eastern Economic Review* (hereafter *FEER*), September 5, 1985: 53.

Table 1

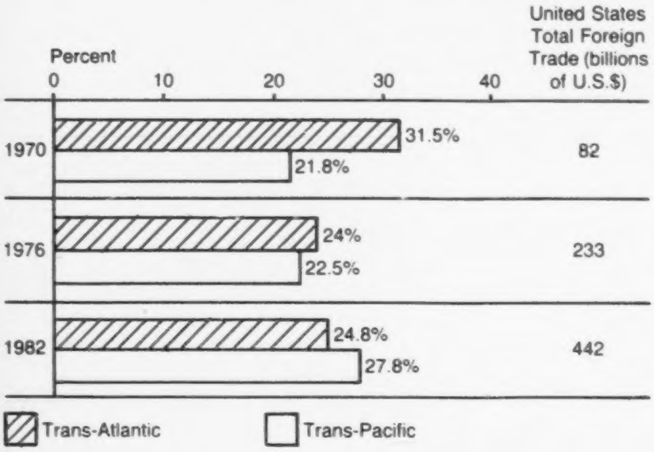
Population and Growth of GNP on the Pacific Rim

Country	*Population, 1981 (millions)*	*Growth of GNP (average 1970-81)*
Hong Kong	5.2	9.9%
Taiwan	18.5	9.8%
South Korea	38.9	9.1%
Singapore	2.4	8.5%
Malaysia	14.2	7.8%
Indonesia	149.5	7.8%
Thailand	48.0	7.2%
Philippines	49.6	6.2%
China, PRC	991.3	5.5%
Japan	117.6	4.5%
Australia	14.9	3.3%
United States	229.8	2.9%
New Zealand	3.3	2.0%

Source: World Bank, *World Development Report, 1983.* Figures on Taiwan are from the *Far Eastern Economic Review Yearbook.*

Figure 1

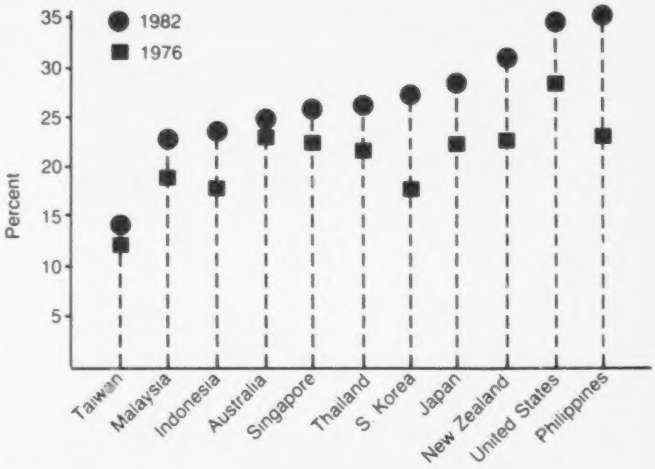
Shifts in United States Trade, 1970 to 1982



Trans-Atlantic includes all of Europe, except Eastern Bloc countries
Trans-Pacific consists of Japan, ASEAN, Asian NICs, China, PRC, Australia and New Zealand.

Source:
Direction of Trade Statistics Yearbooks, 1970-76 and 1983, International Monetary Fund; *The Trade of China (Taiwan District), 1982,* Inspectorate-General of Customs, Taiwan.

Figure 2
Services as Percentage of Total Trade in Goods and Services (1976, 1982)



Services also include shipping and other transportation, investment income, and travel, in addition to general service trade.

Source:
Balance of Payments Statistics Yearbook, 1983, International Monetary Fund; *Taiwan Statistical Data Book, 1983,* Council for Economic Planning and Development.

But the gains would be small compared to the backlash we might face. Protectionism generally would hurt the American consumer, whose "good life" is often measured by the abundance of high-quality goods purchased at bargain prices. These goods range from clothing to consumer electronics to cars. The worst effect of protectionism would be to sustain some sectors of the economy where productivity has declined, where management has become lazy or overconfident, and where the work force is not happy even when wages are among the highest in the world.

Whether or not the President is able to withstand the pressures for protectionism, international trade is likely to continue to expand and benefit participating economies. The Pacific Basin is the place in the world where these opportunities are likely to be the greatest. The challenge for Indiana firms is to recognize the unique opportunities for trade on the Pacific Rim and to plan for the long term.

> *The challenge for Indiana firms is to recognize the unique opportunities for trade on the Pacific Rim and to plan for the long term.*

Opportunities in the Asian Pacific

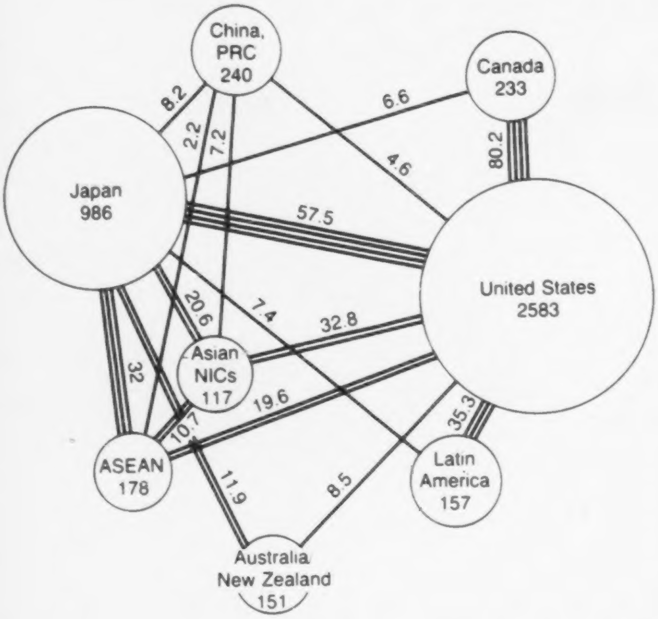
In the late 1970s annual U.S. trade with the nations of the Western Pacific surpassed annual trade with the historical trading partners of the Atlantic. In 1970 31.5% of total U.S. trade was trans-Atlantic; in that same year, 21.8% was trans-Pacific, not including trade with South America and Canada. By the late 1970s the trade volume was equal over both oceans, but by 1982, the Pacific had surpassed the Atlantic in trade volume by $13 billion (see **Figure 1**).

The actual volume of trade was considerably higher because the figures cited here are only for trade in goods. They do not include trade in services. Services as a percentage of total trade with the Pacific Basin countries averaged 20% in 1976 and increased to 27% by 1982 (see **Figure 2**).

Trade with the Pacific, in both goods and services, has grown and is expected to continue to grow at a much higher rate than with Europe or with any other part of the world. By the end of this decade, American trade across the Pacific may be twice the volume of our trade across the Atlantic. In the public mind this economic dynamism has centered primarily on Japan. The Japanese economy is second in size only to the United States in the free world, and Japan has become our second largest trading partner (see **Figure 3**).

Other Asian countries are also experiencing rapid growth and, with their trade-

Figure 3
Trade Relations, 1982



≣ 50-100 billion U.S. dollars

≡ 30-50 billion U.S. dollars

═ 10-30 billion U.S. dollars

— 2-10 billion U.S. dollars

The circles show relative size of real Gross Domestic Product at constant 1980 prices, expressed in billions U.S. dollars for 1982, for each country or cluster of countries. The figures for each trade line are shown in units of billions U.S. dollars, and they include total trade volume, imports and exports.

In 1982, U.S. exports to the Pacific Economic Community area (excluding Canada) accounted for 32.8%, exceeding its exports to the European Economic Community, which stood at 22.6%.

Source
Direction of Trade Statistics Yearbook, 1970-76 and 1983, International Monetary Fund; *The Trade of China (Taiwan District), 1982*, Inspectorate-General of Customs, Taiwan; *National Income of the Republic of China*, December 1982; *International Financial Statistics Yearbook, 1983*, International Monetary Fund; *Quarterly Economic Review, Annual Supplement 1983*, The Economist Intelligence Unit.

oriented economies, are becoming increasingly involved with the United States. These include Taiwan, Korea, Hong Kong, and Singapore, sometimes referred to as the Asian NICs or newly industrialized countries. The American trade deficit with these four countries in 1985 is projected to be $25 billion, roughly half the deficit with Japan.

These dynamic economies and expanding consumer markets also include the People's Republic of China (PRC), where trade is still only half that of Taiwan but is rapidly growing. If China continues to enjoy its present rate of economic growth, by the turn of the century its market may be comparable to Japan's. The Asian Pacific includes another group commonly referred to as ASEAN or Association of Southeast Asian Nations: Singapore, Indonesia, Malaysia, Thailand, the Philippines, and Brunei. Australia and New Zealand are sometimes included in discussions of the Pacific Rim, but their economies have not grown as rapidly as their Asian neighbors, and they are also the only countries in the Western Pacific where the United States has a trade surplus.[2]

Almost all of the Asian Pacific economies were hard hit by the world recession in the early 1980s, but they pulled out of it sooner than did the industrialized nations of the West. This recovery is remarkable for two reasons. First of all, these dynamic economies are trade oriented and therefore are dependent on changes in the world market beyond their control. Secondly, Japan and the Asian NICs are almost completely dependent on energy imports, and yet they overcame this dependence at a time when energy prices were rising rapidly.

The Asian Pacific economies are by no means uniform in income levels. Japan, for example, enjoys a per capita GNP comparable to Western Europe's, while Singapore, Hong Kong, and Taiwan have income levels comparable to Eastern Europe. At the other end of the spectrum, Indonesia and China have per capita GNPs of $560 and $300 in 1983, as estimated by the World Bank.[3]

Despite their vast differences, what these economies have in common is a market-oriented economy and an orientation to export-led growth. Furthermore, these societies have a cultural orientation rather different from our own. The group orientation is stronger than individualism; family and family-like relations are important in business and work environments; governments are generally more authoritarian; management and labor relations are more harmonious than adversarial; and a more anxious view of the future leads to greater savings than in the West.

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[2] See "East Asia and the Pacific," *Business America*, March 4, 1985: 27-35.

[3] *World Development Report 1985* (New York: Oxford University Press, 1985), Table 1.

The combination of these cultural patterns with market-oriented economies and trade orientation to the outside world characterizes the economic success of these nations. To be sure, all is not well. Economic change in the Asian Pacific has produced rising expectations and generational conflicts that threaten to weaken cultural foundations. These countries face problems of political succession that our election patterns solve for us. Bureaucracy frequently interferes with lateral and open communication in ways that most of us would find frustrating.

On the whole, however, these societies are basically healthy, and their economic dynamism is projected to continue into the next century. It appears that they will not only occupy a larger portion of the world's growing economic pie but also expand their share of world trade.

Indiana Exports

Indiana's connection to these opportunities on the Pacific Rim is already in place through existing exports. Because of our land orientation and our distance from both the Atlantic and Pacific Oceans, it may come as a surprise to see just how important international trade is to the Indiana economy. The growth in all exports from Indiana in the decade of the 1970s was fourfold, from $1.3 billion in 1970 to $5.2 billion in 1982 (see **Figure 4**).

According to figures published by the U.S. Department of Commerce, in 1981 Indiana ranked tenth in the nation in the export of manufactured products; in agricultural products, it ranked eighth.

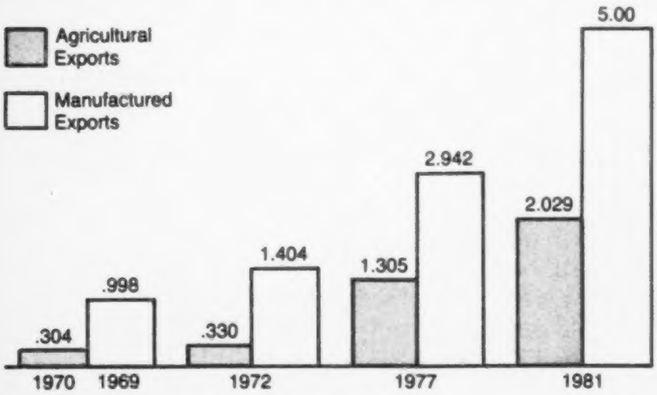
These figures are for states as a whole. Because the leading exporters are states with populations much larger than Indiana's (for example, California, Illinois, Pennsylvania), the real worth of Indiana's exports in per capita terms is much higher. In 1981 it was second in the nation. Between 1977 and 1981, jobs in export-related industries grew faster than jobs in the economy as a whole. In 1981 13.3% of all jobs in manufacturing (140,100) and one-third of all jobs in agriculture (33,300) were export-related. In dollar terms, exports have accounted for one out of every five dollars of sales in manufacturing and one out of every three dollars in agriculture.[4]

> *Between 1977 and 1981, jobs in export-related industries grew faster than jobs in the economy as a whole. In 1981 13.3% of all jobs in manufacturing (140,100) and one-third of all jobs in agriculture (33,300) were export-related. In dollar terms, exports have accounted for one out of every five dollars of sales in manufacturing and one out of every three dollars in agriculture.*

Since 1981 trade volume for the U.S. and Indiana has continued to grow. But trade opportunities have become problem-

Figure 4

Agricultural and Manufactured Exports for Indiana, 1969 and 1981
(in Billions of U.S. Dollars)



Percentage Increases

69-72	72-77	77-81	
8%	296%	55%	Agriculture
41%	110%	70%	Manufacturing

Source:
Foreign Agricultural Trade of The United States, U.S. Dept. of Agriculture; *Annual Survey of Manufacturing: Origin of Exports of Manufactured Products*, U.S. Dept. of Commerce, Census Bureau.
Note: Agricultural figures are reported on a fiscal year basis.

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[4] *Indiana Exports* (Washington, D.C.: U.S. Department of Commerce, August 1984).

atic because export trade growth has declined and the trade deficit, estimated at $150 billion for 1985, is almost equal to our total trade volume ten years ago. Here again, the Pacific Rim is important because it is in this market that Indiana's manufactured products are losing their appeal. Half of the total U.S. trade deficit this year will be with the Asian Pacific countries: $50 billion with Japan, $13.9 billion with Taiwan, $4 billion with Korea, and $5.8 billion with Hong Kong.

Indiana has been caught in this trade reversal because the one commodity dominating Indiana exports has been transportation equipment. Vehicles and vehicle parts accounted for one-third of total exports in 1981. Important as this commodity has been since the 1960s, its role in the local economy already had begun to decline by the late 1970s. Indiana exports in car, trucks, and parts accounted for no significant increase in employment between 1977 and 1981. High as our national ranking in manufactured exports was in 1981, it was even higher in 1969, when it was eighth in the nation.[5]

As one of Indiana's smokestack industries, transportation has been severely hurt in the recession and may never recover the growth pattern or relative strength of earlier years. Even more painful is the fact that Japanese car imports account for a large share of the trade deficit.

The six million jobs created by the Reagan administration in the last four years offer some consolation for the economy as a whole, but these jobs have been concentrated in services and high technology, areas where Indiana's economic strength has yet to develop. If the Japanese offered to locate a major automobile plant in Indiana, as they have in Ohio and Tennessee, the plant would be welcome for the jobs it would create. But its contribution to Indiana's export role might be small.

The declining exports in automobiles and heavy equipment, in steel, machine tools, and consumer electronics are offset to a certain extent by a strong showing in other sectors, such as medical instruments. Exports in this field, which were practically nil in 1980, have grown rapidly in recent years. What is remarkable about this development is that it has occurred primarily among smaller companies. Indiana may have as many as 50 such companies whose names are not commonly known.

The declining exports in automobiles and heavy equipment, in steel, machine tools, and consumer electronics are offset to a certain extent by a strong showing in other sectors, such as medical instruments. Exports in this field, which were practically nil in 1980, have grown rapidly in recent years.

Cryogenics in Indianapolis, for example, began exporting only in 1981. At that time its market was almost totally European. In 1983-84, its exports grew by 500% and accounted for 3% of total sales, with 85% of that market lying in the Pacific Rim area. According to Deborah Strong, Cyrogenics' international sales administrator, exports in 1986 are projected to reach 5% of sales.

The success of another small firm is also instructive. Cook Inc., in Bloomington, makes cardiac catheterization equipment. This year it will export approximately $4 million of sales to the Pacific Rim countries. Export sales for Cook, as a percentage of total sales, have been rising about 1% a year over the last eight years. This year they are expected to reach 15%. In the late 1970s exports were largely across the Atlantic. Since the early 1980s, however, export sales across the Pacific have grown an average of 20% per year, while other export sales have leveled off. In 1983 Cook sales to the PRC were a few thousand dollars; in 1985 they are expected to be a quarter of a million dollars. According to Miles Kanne, executive vice president at Cook Inc., in two years sales in the PRC alone are expected to be several million dollars.

This small-firm vitality has spread to other sectors of the Indiana economy. Two Japanese firms in Indianapolis, Uniden and Alpine, produce electronic equipment. In the last four years they have shown impressive increases in new jobs, domestic sales, and exports. Their success helps soften the economic blow that has come with the recent shutdown of a major Indianapolis electronics plant. These new smaller firms, which happen to be Japanese, have an advantage over older American firms because of innovations in product development, marketing, and productivity.

These small firms are becoming truly multinational in capital, in management, and in personnel. Pacific Rim initiatives are not limited to Japan. Korea and Taiwan are playing larger roles in the state's economy. C. Charles Paik, president of International Hardware Merchants, Inc., in Indianapolis, reports a multimillion dollar business this year, exporting computers and related parts to Korea.

What these small firms have in common is innovation, new product development, and aggressive marketing of exports, especially in the Pacific Rim. Their success helps to reduce the pressures for protectionism, and they soften the dislocations created by declines in other sectors of Indiana's economy.

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Foreign Direct Investment

International trade is more than exports and imports. It also includes foreign investments in securities and in manufacturing. The number of foreign direct investments in the U.S. reached a high of 1200 transactions in 1980 and declined to a low of 800 transactions in 1983.[6] In the last two years, however, the U.S. has given unprecedented attention to the value of FDI from Japan.

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[5] *Indiana Exports* (Washington, D.C.: U.S. Department of Commerce, August 1984).

[6] *Foreign Direct Investments in the United States, 1983 Transactions* (Washington, D.C.: U.S. Department of Commerce, 1985).

The benefits of foreign investments to the U.S. economy can be easily obscured if we focus only on trade in goods and services. Japanese investments in U.S. securities in 1985, for example, have been averaging $5 billion per month. The total for the year was more than the American trade deficit with Japan.[7] Because the incentive for these Japanese investments is the earnings from high American interest rates, the benefit to Japanese investors is obvious. But the benefit to the United States is also considerable. In 1985 these Japanese investments will have financed a large share of the federal deficit.

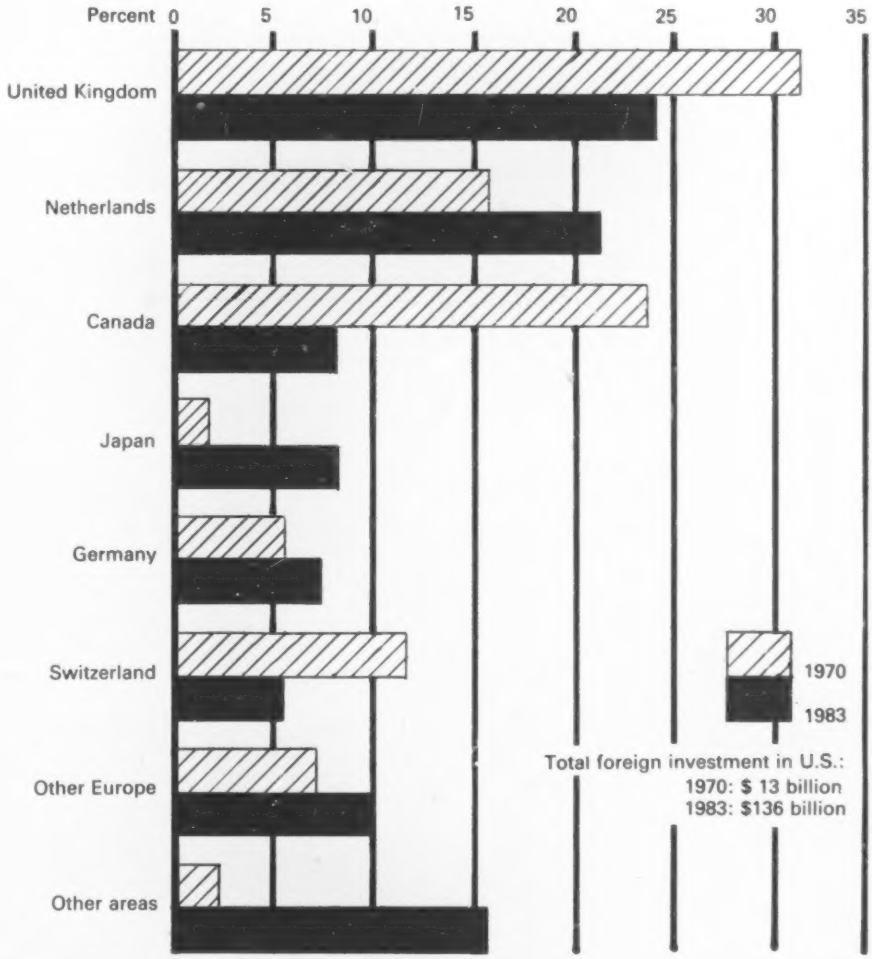
Another kind of transaction is foreign direct investment or FDI. Although FDIs in the United States this year are only about one-quarter the value of foreign investments in securities, they create new "bricks-and-mortar" projects and new jobs, and they soften the cries for protectionism. Japanese FDI may reduce with time the demand that Japan import finished products in such areas as automobiles and consumer electronics. For 1984, Japanese FDI in the United States exceeded $25 billion, more than two-thirds of the trade deficit of $36 billion for that year.[8]

The prospects of Japanese businessmen locating new plants in Indiana have spurred the Indiana Department of Commerce and local Chambers of Commerce into an appreciation for Japan that is unprecedented in our history. Our business colleagues are discovering how useful the East Asian program at Indiana University can be in providing the cultural dimension that makes location in a particular community attractive to Japanese, Chinese, and Korean firms.

Other Asian investors have also been courted, including the Taiwanese Henry Chen, whose $6.2 million ceramics plant is the first major FDI in Indiana from Taiwan. Backed by K.P.T. Inc., one of the world's most sophisticated floor and wall tile producers, the new plant will spur the revival of an Indiana industry that had almost disappeared 20 years ago. This FDI is a coup for Greene County, blessed with plenty of the right kind of clay, and it promises to pump new life into the economy of south central Indiana.[9]

Until recently, FDI in the United States has been largely from our European neighbors. As **Figure 5** shows, the source of FDI has changed radically since 1970, when Canada, the U.K., and the Netherlands accounted for more than 75% of the whole. In 1983, 14% of all FDI in the U.S. was from Japan, a percentage greater than from

Figure 5
Distribution of Foreign Direct Investment in U.S., 1970 and 1973



Total foreign investment in U.S.:
1970: $ 13 billion
1983: $136 billion

Source: U.S. Bureau of the Census, 1985 Statistical Abstract of the U.S.

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[7] *FEER*, September 5, 1985: 52.

[8] Data from the U.S. Department of Commerce and Irving Trust Co.

[9] Bloomington *Herald-Telephone*, September 18, 1985.

either Canada or West Germany. In 1984 27% of all pending FDI transactions were Japanese. These figures suggest that Japanese FDI by now may amount to more than one-third of the total FDI in the U.S., both in the number of investments and also in dollar value. Japan's FDI figures for 1984 and 1985 are likely to be as high, if not higher, than those for Great Britain or the Netherlands. It appears that local Chambers of Commerce are wooing Japanese FDI more assiduously than any other country's.

These figures suggest that Japanese FDI by now may amount to more than one-third of the total FDI in the U.S., both in the number of investments and also in dollar value.

There are some costs connected with attracting FDI. These include demands on the infrastructure, increased imports of parts and less reliance on local suppliers, and greater competition with local firms in the same industry. The benefits, however, appear to far outweigh these costs. FDI typically brings:

- Expanded employment;
- More high-wage industries;
- Increased tax revenues;
- Links to international R&D; and
- The development of an international market orientation.[10]

The disturbing fact is that there is a large gap in Indiana's performance in the international economy. On the one hand, our national ranking in exports has been among the top ten in recent years. On the other hand, Indiana's ranking in FDI is in the lower half of the nation. In the two-year period from 1982 through 1983, Indiana secured 13 foreign direct investments. The value of known cases was reported at $147 million. **Table 2** shows what might be expected: states with much larger populations and greater resources—for example, California, Florida, Texas, Pennsylvania, and Illinois—secured more FDI than did Indiana.

The disturbing fact is that there is a large gap in Indiana's performance in the international economy. On the one hand, our national ranking in exports has been among the top ten in recent years. On the other hand, Indiana's ranking in FDI is in the lower half of the nation.

Compared to other states, however, such as Tennessee and Colorado, states with smaller populations and traditionally smaller levels of exports, Indiana's success in this area is less than it might have been. Though completely landlocked, Colorado has attracted three times more FDI than has Indiana. Tennessee has been so successful that in 1984 it was expected to garner 11% of total Japanese FDI in the U.S., a remarkable performance for a state with only 2% of the country's population. Tennessee's success cannot be explained by its geographical location or its political tradition. Lacking a port facility like Indiana's Burns Harbor, Tennessee has only the Mississippi River to connect it with the ocean. Furthermore, its conservatism may be as deeply rooted as Indiana's. As evidence of the multiplier effect of Japanese FDI, Tennessee's 1980 success with Nissan, an investment of almost $2 billion, has been followed by Japanese capital investments in tires and electronics.

Table 2
Location of Foreign Ventures in Representative States, 1982-83

State	*Number of Cases*	*Value (in millions)**
New York	248	$3,387
California	231	4,423
Florida	201	840
Texas	144	3,351
Illinois	65	773
Georgia	52	1,039
Pennsylvania	49	731
Colorado	40	435
Ohio	28	463
Tennessee	19	128
Indiana	13	147

Source: *Foreign Direct Investment in the United States, Transactions,* U.S. Department of Commerce, combined figures for 1982 and 1983. Figures are not strictly comparable to the more detailed figures of the Bureau of Economic Analysis but give approximate number of cases and value of FDI for each state.

* Value is given only when it is known to the Department; actual value may be greater than figure stated.

The Challenge

How are we to explain the gap between Indiana's performances in exports and in FDI? Why is it that the powerful market forces that have served us so well in exports in the past have not been matched by comparable successes in FDI? In other words, if in the past the quality and hard labor of Hoosier workers and farmers and the entrepreneurship of Indiana firms, large and small, have thrust Indiana into the forefront in exports, why haven't these forces yielded more success in this other area of world trade? Could it be that our political and cultural instincts are working at cross purposes with our economic instincts?

These questions have no simple answers, but I would like to offer three observations. The first is the **rapid pace of change in the world economy and in international trade.** In popular parlance, smokestack industries, though still very large, are yielding to more rapid growth in the high-tech and service sectors. Indiana's economy in the 1960s and 1970s rested on its strength in steel and automobile manufacturing, and it has not adjusted to the larger trends that are beyond the state's control.

A second observation is the **lack of coordinated and decisive leadership.** Some significant strides have been made by the Department of Commerce in expanding trade and attracting FDI. Although these efforts are large compared to some states, they are small compared to others. Tennessee might serve as a point of reference, if not a model.

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[10] *The Costs and Benefits of Foreign Investment from a State Perspective* (Washington, D.C.: U.S. Department of Commerce, International Trade Administration, August 1982).

Look at "The Japanese in Rutherford County," a half-hour videotape produced by the Tennessee Department of Commerce. One gets the impression that state, local, and business leaders have planned for the long range and have cooperated in imaginative ways. They have done their homework. They have identified trends in world trade and in the Tennessee economy. They also have carefully cultivated contacts and business relationships with the Japanese. In the words of Lamar Alexander, Tennessee's two-term governor, the state has "got the talk right." Tennessee's leadership apparently has impressed the Japanese with its willingness to invest in providing infrastructural support, with its hardworking and reliable labor force, and also with its sincerity.

A third observation is the **lack of communication between the state's business and government leadership and the academic experts on the Pacific Rim** at Indiana University and other colleges and universities. Our expertise is both economic and cultural. This failure in communication may be due to the failure of the universities to reach out to our colleagues in the state. I would like to think this situation might change. The problem, however, may also be due to the state leadership's lack of appreciation for these resources and this expertise.

A few years ago there was almost no discussion between university experts and business and government leaders on trade and investment opportunities associated with the Pacific Rim. Now there are some beginnings, but they remain ad hoc in nature and peripheral to the decision making both inside and outside the university. If these communications were to become a regular pattern, it would help to improve Indiana's opportunities on the Pacific Rim, both in exports and in foreign direct investment.

Lee Iacocca can serve as a model of responses to the challenge of the Pacific Rim. Until quite recently, Iacocca was often cited as a voice for protectionism and for holding out against the Japanese. His stance appealed to our pride and our self-image as a people who are decisive and take action.

But Iacocca's attitude has changed. In April Iacocca signed a joint venture agreement with Mitsubishi to set up a new car plant that will create 11,300 new jobs and make Mitsubishi a major participant in the American market. Each side will hold 50% equity in the venture. Surprisingly, Chrysler asked Mitsubishi to take the lead in dealing with state and local governments in site selection, in the building of the plant, in dealing directly with unions, and in day-to-day operations. This seems to be a major concession to the Japanese, not just in production but also in management.

"Nobody fought harder than we did to keep the auto restraints," Iacocca admits. "We were right to fight, but we fought the good fight and we lost."[11]

The new rules gave the Japanese an advantage of more than $2,000 per car. Says Iacocca, "The conclusion was crystal clear: we need a greater reliance on our Mitsubishi colleagues to compete in the low end of the U.S. market."

Market share was Iacocca's concern. "When we were going broke," he says, "our market share got as low as 8%. We've fought like tigers to get it up to 12.5% today. We need that share to succeed, and we're going to do whatever it takes to keep it."

Lest anyone attempt to balance the auto industry's difficulties with hopes for high technology, Iacocca says bluntly, "I don't think high tech is going to save us." He notes that in the last four years foreign (mainly Japanese) penetration of the U.S. computer market has quadrupled; in semiconductors, it has more than doubled.

The opportunities on the Pacific Rim are clear. Responding to the challenge includes pressing forward with our Asian colleagues on issues of fair trade. But it also means doing what Chrysler has done and beginning to think globally. The issue is economic value added, which means greater cooperation with the Japanese, the Chinese, the Koreans, and our ASEAN colleagues. It means sharpening our competitive edge by tapping into, not opposing, their resourcefulness. This cooperation goes beyond the development of new export markets and larger FDIs—although we need to work harder on those, too. Cooperation can also mean licensing agreements, joint R&D centers, parts and components sourcing, joint ventures, and even acquisitions.

The business sector knows what needs to be done on the production end. My colleagues and I can be of some help in providing a long-term perspective that avoids counterproductive outbursts of frustration. These outbursts range from shortsighted protectionism to the early terminations of Americans working in the different cultural environment of the Asian Pacific. Perhaps the largest pitfall to avoid is gearing up for quick profits instead of taking the Asian markets seriously. ☐

Help Available from Indiana University's East Asian Studies Center

We at the East Asian Studies Center stand ready to help Indiana business make the most of the opportunities and challenges that lie within the Pacific Rim.

We have state-of-the-art language programs to aid in breaking down the barriers of communication. Indiana University's "total immersion" summer institute in Chinese, Japanese, and Korean is a program second to none in the nation (though it costs considerably less than others). We can help firms with analyses of the Asian external environment. If requested, we can provide intensive and practical training seminars that illustrate the interaction of cultural and political forces as they bear on decision making in the business world. Such seminars would focus on the appreciation of harmonious human relationships and, above all, respect for the cultural differences of the people who are potential investors, partners, and markets. In Lee Iacocca's words, we are prepared to play a part in doing "whatever it takes." **Philip West**

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[11] Quotations in this section are from "Fairness First: A Level Playing Field for U.S.—Japan Trade," *Speaking of Japan* (Keizai Koho Center), July 1985: 1-8, a printed version of the speech Iacocca delivered at the Japan Press Center in Tokyo on April 17 of this year

Trade Between Selected Pacific Rim Countries and Its Share of Their Total Trade — 1970, 1976, 1982
(In Million US Dollars)

FROM/TO	YEAR	US	JAPAN	AUSTRALIA/ NEW ZEALAND	HONG KONG	KOREA	TAIWAN
US	1970	—	4652	1120	406	637	527
	1976	—	10150	2600	1115	2015	1635
	1982	—	20966	5431	2453	5529	4107
JAPAN	1970	6015	—	704	700	818	700
	1976	15927	—	2730	1843	2828	2283
	1982	36546	—	5486	4707	4869	4315
AUSTRALIA/ NEW ZEALAND	1970	520	1374	363	98	13	39
	1976	1531	4852	978	243	205	166
	1982	3043	6407	1884	501	792	650
HONG KONG	1970	897	178	90	—	17	50
	1976	2480	595	388	—	98	233
	1982	6040	941	661	—	319	275
KOREA	1970	395	236	4	28	—	7
	1976	2498	1802	110	325	—	84
	1982	5981	3368	380	900	—	210
TAIWAN	1970	567	215	21	135	28	—
	1976	3060	1102	234	610	73	—
	1982	8732	2370	696	1550	193	—
CHINA, PRC	1970	0	231	40	425	0	0
	1976	201	1248	114	1448	0	0
	1982	1741	4756	252	5117	0	0
BRUNEI	1970	0	0	16	0	0	1
	1976	142	901	0	0	0	44
	1982	199	2390	9	1	131	41
INDONESIA	1970	144	452	40	11	0	0
	1976	2452	3565	34	24	152	131
	1982	3533	10298	966	116	592	235
MALAYSIA	1970	219	309	46	21	44	21
	1976	826	1119	140	66	95	71
	1982	1266	2463	262	209	446	427
PHILIPPINES	1970	433	418	5	13	32	17
	1976	926	625	52	39	23	44
	1982	1580	1145	95	197	151	57
SINGAPORE	1970	172	118	59	63	11	12
	1976	965	676	404	513	74	67
	1982	2612	2262	1142	1751	317	136
THAILAND	1970	95	181	5	53	2	35
	1976	299	769	32	149	30	91
	1982	864	955	96	309	78	96
PACIFIC IMPORTS	1970	9457	8364	2513	1953	1602	1409
	1976	31307	27404	7816	6375	5593	4849
	1982	72137	58321	17360	17811	13417	10549
TOTAL IMPORTS	1970	38811	15543	5334	2928	1907	1673
	1976	117631	57520	13956	8471	8035	6853
	1982	230034	114006	27950	22898	20986	17074
PACIFIC IMPORTS AS % OF WORLD	1970	24.37	53.81	47.11	66.70	84.01	84.22
	1976	26.61	47.64	56.00	75.26	69.61	70.76
	1982	31.36	51.16	62.11	77.78	63.93	61.78

Source:
Direction of Trade Statistics Yearbooks, 1970-76 & 1983, International Monetary Fund; *The Trade of China (Taiwan District), 1982.* Inspectorate-General of Customs, Taiwan.
Note: Figures are reported FOB. Conversion rate used for Taiwan dollar in 1982 US$1 = NT$39. Singapore's exports to Indonesia are not published.

CHINA PRC	BRUNEI	INDONESIA	MALAYSIA	PHILIPPINES	SINGAPORE	THAILAND	PACIFIC EXPORTS	TOTAL EXPORTS	PACIFIC EXPORTS AS % OF WORLD
0	0	264	67	373	240	150	8436	43231	19.51
135	32	1036	536	819	965	347	21385	115413	18.53
2912	79	2025	1736	1854	3214	915	51221	212274	24.13
569	10	316	167	454	423	449	11325	19318	58.62
1666	32	1641	705	1115	1533	1072	33375	67320	49.58
3500	144	4251	2496	1799	4357	1903	74373	138443	53.72
133	14	44	80	57	112	37	2884	5999	48.07
288	2	248	257	158	280	77	9285	15946	58.23
927	5	472	479	251	808	186	16405	27589	59.46
11	5	46	33	16	102	24	1469	2515	58.41
30	5	176	102	92	353	112	4664	8526	54.70
1939	14	820	198	376	918	199	12700	20896	60.78
0	0	3	1	1	11	5	691	839	83.36
0	0	49	18	29	78	24	5017	7715	65.03
197	44	432	270	178	429	110	12499	22251	56.17
0	1	32	12	16	36	25	1088	1425	76.35
0	1	219	54	78	213	80	5724	8156	70.18
0	17	422	222	234	574	216	15226	22126	68.81
—	3	30	68	0	114	0	911	1680	54.23
—	6	120	122	51	243	65	3618	6045	59.85
—	4	45	179	233	625	166	13118	21632	60.64
0	—	0	83	0	1	0	101	101	100.00
0	—	0	74	2	20	0	1183	1333	88.75
0	—	0	1	71	203	17	3063	3171	96.60
0	0	—	36	26	172	0	881	1108	79.51
0	0	—	23	90	644	2	7117	8546	83.28
106	0	—	61	207	1050	32	17196	20004	85.96
22	10	11	—	29	364	15	1111	1687	65.86
45	37	23	—	80	967	68	3537	5297	66.77
141	32	39	—	117	3033	348	8783	11789	74.50
0	0	2	0	—	7	3	930	1043	89.17
38	0	12	5	—	56	7	1827	2574	71.00
105	4	55	178	—	111	14	3692	5010	73.70
23	25	NA	340	4	—	51	878	1554	56.50
39	97	NA	1005	52	—	197	4089	6594	62.01
240	359	NA	3669	323	—	799	13610	20787	65.47
0	0	16	40	1	49	—	477	710	67.18
61	4	154	126	30	202	—	1947	2980	65.33
368	9	142	379	33	477	—	3806	7040	54.06
758	68	764	927	977	1631	759	31182	81210	38.40
2302	216	3678	3027	2596	5554	2051	102768	256445	40.07
10435	711	8703	9868	5676	15799	4905	245692	533012	46.10
1730	71	1051	1402	1315	2320	1152		75237	
4731	257	5403	4091	3938	8937	3435		243258	
16827	828	14051	12547	8460	27212	7804		520677	
43.82	95.77	72.70	66.12	74.30	70.30	65.90		41.44	
48.66	84.05	68.07	74.00	65.92	62.15	59.71		42.25	
62.01	85.87	61.94	78.65	67.10	58.06	62.85		47.20	

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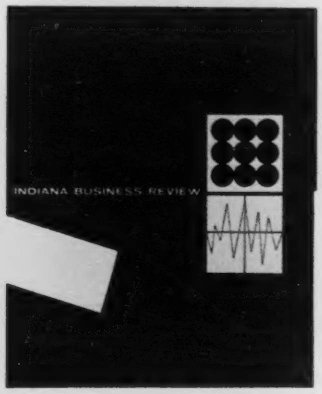
Volume 60 September/October 1985

Brian K. Burton — **Business Research at Indiana: An Informal History**

Janet L. Fedde — **Indiana's Gross State Product**



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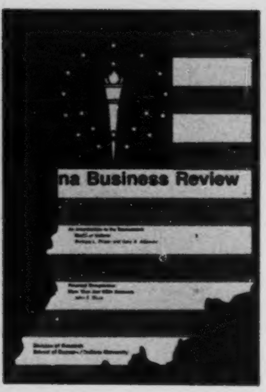

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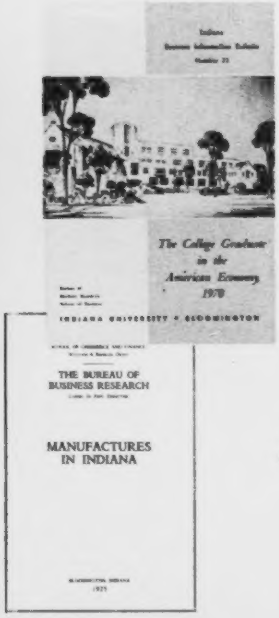

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MANUFACTURES IN INDIANA

60th Anniversary Issue

In this issue . . .

At this beginning for the Indiana Business Research Center, we look back at the origins and proud record of our predecessor organizations, the Bureau of Business Research and the Division of Research. Brian Burton has put together an informal history of organized research in the Indiana University School of Business. Through interviews and document study, he has provided us with parts of the past. Any such history must necessarily omit more than it includes. Missing is mention of dozens, even hundreds of important people who have shaped concepts, words, and numbers during these 60 years. To those students and secretaries, faculty and friends, editors and readers, these pages continue to be dedicated.

Janet Fedde, one of the students now working in these corridors, has brought forward in time the Gross State Product estimates published by her predecessors. This series is often requested by those seeking a different perspective on the state's economy. Plans are in progress to make this information available more frequently.

MJM

Indiana Business Review

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Morton J. Marcus, Director and Editor

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Business Research at Indiana: An Informal History

Brian K. Burton

During the past academic year Brian K. Burton was an assistant to the editors of both the Indiana Business Review *and* Business Horizons.

In September 1985, the Indiana University Board of Trustees approved a proposal that caused little stir in the University community. That proposal separated into two units what had been the Division of Research in the School of Business.

One unit, called the Indiana Business Research Center (IBRC), is under the direction of Morton J. Marcus, Indiana University research economist. It continues the research activities formerly lodged in the Division.

The other, called Academic Support Services, is directed by H. Donald David, formerly the administrative director of the Division. It coordinates the various support services that had been handled by the Division.

As mentioned, the Trustees' approval caused little stir. That is as it should be, for the Division of Research, under whatever name, has been quietly working behind the scenes for Indiana for 60 years, contributing greatly to the concept of state economic research.

It was appropriate, in fact, that this latest change should come in September. Not often can an organization celebrate both its birth and its sixtieth anniversary in the same month and year. September 1925 marked the beginning of what would become, in September 1985, the Indiana Business Research Center.

In 1925 there was no School of Business. There was, however, a School of Commerce and Finance, located on Bloomington's Third Street in Commerce Hall. That building is known today as Rawles Hall, named for the dean of the School at that time, William A. Rawles.

Enter Lionel Edie and the Bureau of Business Research

One of the few faculty members in the School was Lionel D. Edie. He had received his education at Colgate University in Hamilton, New York, a part of the eastern educational establishment. Several business schools in the east had research arms by that time, and some Midwestern universities were copying them. Indiana University decided to join the trend, and Edie was chosen to direct the newly formed unit. It was to be called the Bureau of Business Research.

Although the Bureau has received scant notice in the histories of Indiana University, the fact of its founding was mentioned in the *Indiana University Alumni Quarterly* in October 1925. The magazine stated, "Indiana University, keeping step with other mid-western universities, has established a bureau of business research, to be conducted by the School of Commerce and Finance. The general purpose is to carry on work in research that will be of special value to the business men of the state."

Another interpretation of that statement is that, through its research, the Bureau would help Indiana's economy, something that is still the objective of the ultimate successor to the Bureau, the Indiana Business Research Center.

The *Indiana Business Review* Is Born

Records from that time are very sketchy, but what must have been one of Edie's first ideas has proved to be the most lasting contribution that the Bureau has made, both to the state and to the academic community. In cooperation with the Fletcher American National Bank, as it was then called, Edie founded the *Indiana Business Review* as a monthly review of business conditions in the state.

> *The* IBR's *national significance is that it was the first publication devoted solely to a review of business conditions in a single state.*

The *IBR's* national significance is that it was the first publication devoted solely to a review of business conditions in a single state. Its significance to the Bureau, the Division, and the Center is that it is its longest-lasting publication, a kind of "house organ." Although it has changed quite a bit over the years, the *IBR* still serves to bring business-related information to its readership.

The first *IBR* was published on March 10, 1926, by Fletcher, in cooperation with the Bureau. This arrangement would continue for seven years. The Bureau collected the data and edited the material, with Fletcher publishing and distributing the resulting journal.

The *IBR* was not the Bureau's first publication, however. That honor belonged to a booklet entitled "Manufactures in Indiana," written by Edie and published as *Indiana Business Studies No. 1* in 1925. This was the first of the Bureau's publication series. *Indiana Business Studies* appeared periodically until 1970.

During these early years the Bureau was housed in two separate places, indeed in two separate cities. The main office was in Bloomington, at the University. The *IBR* office, however, was located in Indianapolis. This was an obvious location because Fletcher published the *IBR* and Fletcher was in Indianapolis. The quarters for the staff there were provided without charge by the Indianapolis Chamber of Commerce.

By October 1926 the Bureau had developed something new for Indiana, an index of industrial production in the state. The index initially was based on five items: kilowatt hours of electricity consumed, tons of pig iron production, square feet of new building contracts, cubic feet of building stone mined, and tons of coal mined. None of these statistics were measured in dollars, keeping inflation or deflation out of the picture. Perhaps more importantly, however, all of them were available on a monthly basis and were released shortly after the particular period ended.

Lionel D. Edie (1927)

This index, which eventually came to be called the Indiana General Business Index, was a major feature of the *IBR* for some time, although it was modified as more sophisticated methods were found. For many years the index was presented graphically on the front page of the journal. With format changes and technological changes, the index now has disappeared from the pages of the *IBR*.

Meanwhile, Edie continued to work in other areas. He published the second in the *Indiana Business Studies* series, a study of state income taxation. And the *IBR* added a feature detailing business conditions in localities throughout the state. This feature, although it has changed considerably, still appears in the journal in the form of the semiannual forecast editions.

Starr Director

By the summer of 1927 Edie decided to leave Indiana University, and the Bureau welcomed a new director. His name was George W. Starr, and he would remain director for the next 27 years. Starr was a product of Ohio State University, where he had spent two years as acting director and two years as assistant director of that school's business research bureau.

One of the first things Starr did as director was to man a booth at the Indiana State Fair. Apparently the Bureau, at that time, received quite a few letters from businessmen asking questions about one thing or another.

"Somebody thought up the idea that we had to have a place at the fair where people or businesses could come in and get information," Starr said. "What happened was we got a lot of inquiries, and I'd agree to look it up and let them know. We did a lot of work like that."

What Starr remembers most, though, was the location of the booth. "We were right next to the poultry section," he said. "Those roosters would crow from early in the morning till late at night."

Starr didn't go back to the State Fair, at least to man a booth. He did, however, start publishing research. Most of that research started with the same kinds of questions he got at that booth at the fair. He looked at everything from retail groceries to college bookstores, and for 15 years most of what the Bureau published had his name on it.

The major publishing effort, however, continued to be the *IBR*. Just before the 1929 stock market crash, the *IBR* published its first bit of research. This was a report on industrial development over the course of the state's history.

Although the Bureau and Division generally have been noted for the accuracy of their forecasts, in this period one forecast was off.

In the January 20, 1930, issue, the editors noted the sharp drop in the economy in the last quarter of 1929. They did not feel it would continue, however: "Business enters 1930 considerably below normal with the prospects favoring a reversal of this trend during the coming year."

In the January 20, 1930, issue, the editors noted the sharp drop in the economy in the last quarter of 1929. They didn't feel it would continue, however.

Of course, the trend did not reverse as the country entered the Great Depression. Still financed by Fletcher, the journal began a series in June entitled "Views of Business

60th anniversary issue

Leaders," trying to convince people that conditions would improve. By October, however, it was obvious that conditions would get worse before they got better, and the series was dropped.

As the Depression worsened, businesses around the state and nation tightened their belts. Fletcher American National Bank was not exempt from that movement. In the summer of 1932 it decided its financial condition did not warrant continued underwriting of the *IBR*, and it withdrew its support.

By this time the Bureau's office in Indianapolis had been moved from the Chamber of Commerce building to the Indiana University Extension Center (which later would become IUPUI). The *IBR* apparently was too well liked at this point for the University to let it die, and so the Bureau assumed full responsibility for its publication. That meant closing the Bureau's Indianapolis office and moving the editorial staff to Bloomington. For the first time the Bureau would be one family.

This move must have helped to free Starr from some of the more mundane duties of the directorship, for he began to take on other, outside activities. Before 1931 he had written every special study published by the Bureau, seven in three years. After 1931, however, although he still published some studies, other people began publishing as well.

Starr said of his style as director, "I saw that things got done." He did that while at the same time writing a biweekly column for *The Indianapolis Star*, serving on the Aeronautics Commission of Indiana, helping to found the Junior Division at Indiana University (now the University Division), serving on the Indiana Economic Council, and teaching transportation and public utilities in what eventually became the School of Business.

The Bureau did not change very much during Starr's tenure. What changes did occur were gradual. Starr recalled that it was "not a big organization by any means, with not a lot of difference" between when he started and when he resigned in 1954.

The *IBR* began to change from a mere pamphlet with figures in it to a full-fledged journal. In 1935 a section on retail news was added, and in 1936 came the first actual forecast, forming a supplement to the journal. In 1937 a real estate section was introduced. A major change came in 1940. Printed on the inside back cover of the September issue was an article, "Promoting Trade in the Small Town," that had nothing much to do with specific business conditions in Indiana. This was the first time such an article had been printed in the *IBR*. Many more like it would follow in the next 14 years.

The *Indiana Business Studies* continued its output throughout Starr's tenure as director. Some of the subjects covered included township government, the costs of retailing coal, state disbursements, corporate earnings, a cost accounting bibliography, and land use in Bloomington from 1818 to 1950. Some 37 studies were published in the series before Starr's resignation, an average of more than one a year.

Another innovation during Starr's directorship was the *Indiana Business Reports* series. This publication began in 1939 with reports and proceedings from conferences held at Indiana University. The first conference proceedings to be published were from the Sales Management Conference in 1939. The first in this series *not* to result from a conference was No. 7, "The Materials and Uses of Business History," published in 1941. Another paper published in this series was "Research Needs in Business During the '50s," published (appropriately enough) in 1950 as No. 13.

The Link That Missed

The Bureau would have changed quite a bit more if then Dean of the School of Business, later Indiana University President, and current University Chancellor Herman B Wells could have had his way.

In 1937 Wells, in concert with other business school deans, tried to get federal aid for business research bureaus. The aim was for business research bureaus to develop the same relationship with the U.S. Department of Commerce that agricultural experiment stations had with the Department of Agriculture. This would bring more federal funds for higher education into

COMMERCE HALL (from the 1923 *Arbutus*). The building, which cost $250,000, was dedicated in April 1923. It is now called Rawles Hall, after William A. Rawles, who was chosen dean when the School of Commerce was inaugurated in 1920. The 1927 issue of the *Arbutus*, the Indiana University yearbook, reported: "A valuable department in this school is the bureau of business research, operated and conducted under the direction of L. D. Edie. The work of this department is gaining wide recognition."

those state universities that did not have schools of agriculture. The land-grant schools, and those other schools with agriculture programs, fought and defeated this proposal.

In 1937 Wells, in concert with other business school deans, tried to get federal aid for business research bureaus. The aim was for business research bureaus to develop the same relationship with the U.S. Department of Commerce that agricultural experiment stations had with the Department of Agriculture.

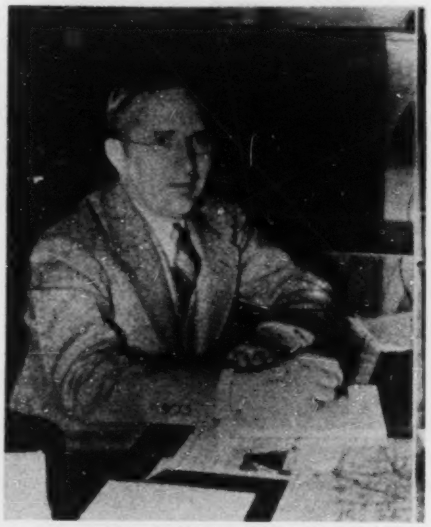
In his book *Being Lucky* Wells wrote that, if the proposal had been enacted, "it not only would have strengthened our business school but also would have greatly aided in the development of business research and business in the state of Indiana."[1]

The *Indiana Business Reports* series and the *Indiana Business Studies* series both almost completely stopped publishing during World War II. The *IBR*, however, continued monthly publication and added a column entitled "Defense Items."

Starr and the Postwar Years

After the war the Bureau got a boost with the hiring of Schuyler F. Otteson as professor of marketing and associate director of the Bureau. Otteson, like Starr, had ties to Ohio State, where he had just earned his Ph.D.

Otteson's arrival in 1948 coincided with the beginning of another publication series, the *Indiana University Business Information Bulletin* series. This series did exactly what its title suggests: it gave businessmen information that they might need in their businesses. The first in the series was "What You Should Know about the Taft-Hartley Law," published soon after the law was passed.


George W. Starr (1940)

Except for *Indiana Readings in Business*, which were used mostly for classroom instruction, the *Business Information Bulletin* became the most prolific of all the irregular series published by the Bureau and Division. In all, 60 *Bulletins* were published, compared with 47 *Reports* and 40 *Studies*.

With Otteson on board, Starr was free to continue his outside work. In the 1950-51 school year Starr was on sabbatical, and Arthur E. Warner was acting director of the Bureau. Then, beginning in 1952, Starr became director of the Gross Income Tax Division of the State of Indiana. He was still a member of the Indiana Economic Council and still teaching. In 1954 Starr decided he was trying to do too much. He resigned as director of the Bureau in the summer of 1954.

During his years as its director George Starr had given the Bureau a high profile. Starr was well known in Indiana political circles. Once he was even asked to run for governor. Well respected in the state, he advised both Republican and Democratic administrations. He continued on the faculty until 1962, and now lives in retirement in Columbus.

Otteson Takes the Helm

When Starr left, the natural thing to do was to appoint Schuyler Otteson director, and that was done. Coinciding with that appointment was a change in the publicly stated goals of the Bureau. Starr had published a great deal of research through the Bureau, but Otteson was more of an idea man, someone who could create something new for the Bureau to do. With his appointment the emphasis was changed to publication and support of faculty research, instead of doing the research within the Bureau.

The first thing Otteson did was to send out a survey to *IBR* readers finding out if the journal was satisfying their needs. It hadn't been substantially changed from its birth in 1926.

The survey results came in, and what resulted from them was staggering: in effect, a whole new journal came into being. The *IBR* format had been a series of articles, the same every month, focusing on different areas of business activity in the state. The new format combined all of these articles into one general summary article. The one-page article on a business-related topic was expanded and formed a major part of the journal. The data were still published in a section in the back of the journal, including the Indiana General Business Index, a feature of the *IBR* since its founding. But the reports from cities around the state, also a regular feature, were dropped.

Perhaps most significantly, for the first time in the *IBR's* history there were regular economic forecasts. These were published twice a year, in April and October, each covering the ensuing six-month period. According to Otteson, this was an expansion of and improvement on what had gone before.

"They used to go out and give a luncheon show and present a forecast," he said.

John Lewis, later to gain national recognition, was the *IBR's* economist. He worked with the dean of the business school, Arthur M. Weimer, to establish the precursor of today's Business Outlook Panel.

"It was uncanny how close we kept coming all the time in the published ones," Otteson recalled, adding that the forecast programs he would take on the road didn't always come that close. "Nobody remembered those, though," he chuckled.

The first issue in the new format, which

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[1] Herman B Wells, *Being Lucky* (Bloomington: Indiana University Press, 1980): 83-4.

60th anniversary issue

A BUSINESS OUTLOOK PANEL from the 1960s, speaking at the French Lick Sheraton. Panelists on this occasion were, from left, Jack R. Wentworth, Robert C. Turner, Charles F. Bonser, and Ross M. Robertson.

also included a new design for the journal, appeared in February 1955. Soon after that, the second big project of Otteson's tenure was given to the Bureau. It was nothing less than a forecast of where Indiana's economy would be in 1970, 15 years down the road.

Otteson recalled that the Bureau got $10,000 for the project, far less than it needed, and the state wanted it done in six months. University professors each took a section of the economy and analyzed it, and the result was a 14-volume study, *Indiana's Economic Resources and Potential*, which was done on time and on budget.

Otteson remembered a special legislative session held at the University to unveil the study. All the legislators got a large, heavy copy. He said the impression the study made, not only on the legislators' laps but on their minds, was an important one.

"They couldn't quarrel with it, they couldn't replicate it, and they didn't know enough detail to argue about it," he said. "They took all of our predictions and just built them into the budget."

Not only that, Otteson said, but 15 years later, in 1970, most of the forecasts made in that study proved to be amazingly accurate. "If anything, they were conservative," he recalled.

The Birth of *Business Horizons*

With two successful projects under his belt, Otteson decided to try something else. "Our goals far exceeded our resources, no question about it," he said. "But we decided we'd try to put out a magazine which was in competition with the only one that really was known nationally, the *Harvard Business Review*."

Otteson and his staff decided to start the magazine as a supplement to the *IBR*. It was also decided to use home-grown talent, so to speak, with all but one of the contributors from Indiana University. The special supplement was issued in December 1956. It was called *Business Horizons*.

"It was very well received, and the faculty got very excited about it," Otteson said. "We thought we'd take one more shot at it."

This next shot was a special issue in June of 1957. The Bureau, in an arrangement with an advertising professor, sold advertising space. As a result of some problems in communication, the Bureau wound up with 10,000 copies to distribute. Of those, to meet Post Office regulations, 5,000 had to be sold. With an amazing effort on the part of many people, the subscription level of 5,000 was reached. (Then-President Herman B Wells was one of those who was persuaded to purchase a copy.) The Bureau was home free. More to the point, *Business Horizons* was off and running.

"That [issue] met with considerable success," Otteson said. It was a good thing, he added, because a prominent notice in the magazine stated that *Business Horizons* would become a quarterly magazine with a separate existence in December of that year. That success was "enough that we dared to follow through with our commitment," Otteson said.

To tell the world about *Business Horizons*, the Bureau held two press conferences, one in New York and one in Chicago.

"We got national coverage announcing it," Otteson said. "But it also was the day that Sputnik went up."

Business Horizons continues to this day as one of the top journals in the business world. Jack R. Wentworth, now dean of the School of Business, was assistant director of the Bureau when the first *Business Horizons* appeared. He said, "*Business Horizons* has played a significant role in the reputation of the School. I think it is second to the *Harvard Business Review* in terms of size, prestige, and when it started. It's done a lot to help the ranking of the School."

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A good deal of the credit for the success of *Business Horizons* must go to the five editors the journal has had in its history. Otteson, its first editor, continued in that position even after leaving the Bureau. William G. Ryan took Otteson's place in the fall of 1966 and directed the journal for 10 years, the longest term of any *Business Horizons* editor. Ryan stepped aside in the fall of 1976, and John D. Long took over while the search for a permanent replacement continued. That search ended with the appointment of Harvey C. Bunke in the fall of 1977. Bunke continued to hold that position, and several other posts as well, until the summer of 1985, when Joseph Hartley took over the reins.

The End of the Fifties

Not content merely with launching *Business Horizons*, Otteson tried something else. He established a Case Collection Unit and started another publication series, the *Indiana Case Studies in Business*. This series, however, was not so successful as were the others in the Bureau's history, and only three volumes were published: one on home construction, one on family-owned businesses, and one on personnel administration.

Another project during the Otteson years was not destined to last. This was a weekly television show, beginning about 1955, on Bloomington's Channel 4. Many faculty members participated in the live broadcasts, which ended sometime before Otteson resigned.

Meanwhile the *IBR* was rolling right along. In January 1959 it underwent another style change, and in the same month it reached the 7,000-subscriber mark. Then as now—and ever since its beginnings—the *IBR* is sent free to any Indiana citizen who requests it.

Another perspective on the Bureau during the Otteson years comes from Charles F. Bonser. Then a graduate student in the School of Business, Bonser is now dean of the School of Public and Environmental Affairs at Indiana University. Bonser served the Bureau as a graduate assistant, as assistant director while still a student, and then as associate director in the 1960s. He remembered the Bureau as a pleasant place to work.

"It was a very folksy, kind of family place," he said. "Most of the activity revolved around producing *Business Horizons* and the *Indiana Business Review*. As a graduate assistant I did a lot of *IBR* stuff, a lot of trying to improve the knowledge of the economy of the state of Indiana, which we didn't have a lot of knowledge about."

Then as now—and ever since its beginnings—the IBR *is sent free to any Indiana citizen who requests it.*

In 1960, the administration called a halt to any new projects at the Bureau. As Otteson said, "That took all the fun out of it for me."

That summer Clare Barker, who had been head of the marketing department, died. Otteson resigned as director of the Bureau to become marketing's new chairman. In 1971 he became dean of the School of Business, retiring in 1983.

There are several enduring legacies from Otteson's directorship. One of the most important may be the relationship between the faculty and the Bureau.

"I did my best to keep a very close relationship with the faculty," Otteson said. "The lifeblood of the school is the faculty; if they don't support you, you're dead."

One way Otteson helped that relationship was to set up a publications committee that reviewed anything, in any series, that the Bureau might publish.

Schuyler F. Otteson (1965)

"You could say it was like a refereed article," he said. "If you can say that an article was published in a refereed journal, it has 10 times the weight another article might have."

Another change during Otteson's years as director was in the location of the Bureau. In 1956 it moved from Woodburn Hall, where the School was at that point, to a house at the corner of 10th Street and Fee Lane. Ten years later the School itself moved to a new building constructed on that site. The Bureau moved several times before its eventual relocation in the main building a short time later.

Wentworth Becomes Director

When Otteson resigned, again a successor was easy to find. That man was Jack Wentworth, who received all three degrees (B.S., M.B.A., and D.B.A.) from Indiana University.

"Jack had been with me since '56," Otteson said. "He handled a lot of the day-to-day operations as assistant and associate director. He knew what we were supposed to be doing."

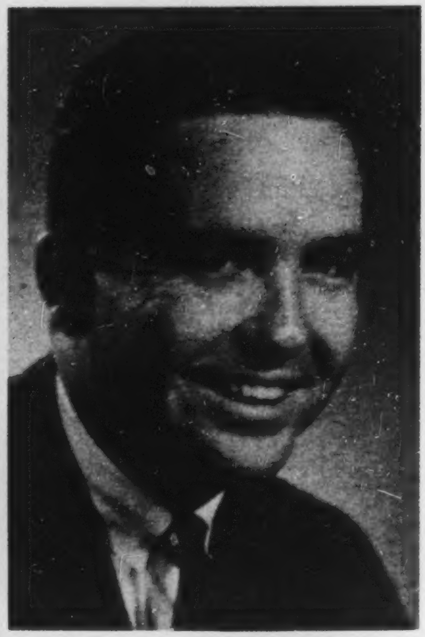
Just before Wentworth took over, a sign of the times showed the Bureau entering the modern age. For the first time a computer was used to compile an index that appeared in the April 1960 *IBR*. Wentworth said it wasn't surprising that the Bureau got a computer before any other department in the School.

For the first time a computer was used to compile an index that appeared in the April 1960 IBR.

"Dean Weimer looked at the Bureau as kind of the research arm of the School," he said. "We were the first to try things, and if there wasn't a place for something, we got it."

Although there was a new director, the Bureau itself didn't change much in the transition. Publications continued to appear. In 1961 a new series, the *Indiana Busi-*

60th anniversary issue



Jack R. Wentworth (1965)

ness Papers, made its appearance with a paper entitled "A Vivid Description of Our Changing Business Environment," written by Herman C. Krannert. In the beginning this series provided a forum for work of a national and international nature, including studies of the federal budget and of housing in Vienna.

As the years passed, the *Indiana Business Papers* series changed its emphasis. By this time two of the older series were slowing down. The *Indiana Business Studies* hadn't published anything since 1956. The other, *Indiana Business Reports*, had evolved from publishing reports of conferences to publishing other types of studies. The *Business Papers* series then started doing what the *Business Reports* series previously had done—it published conference proceedings. By the end of the 1960s, however, all of the publication series were in decline.

The publication program as a whole was one of the two areas in which Wentworth saw great change in the Bureau during his years there.

"When Otteson took over, the Bureau was a small office with a secretary," Wentworth remembered. "There had always been a publications program, but it was an in-house type of thing. That operation really grew. We became almost a small University press. Very often we had little monographs that became very popular. We had some dissertations that turned into books, as well."

Some of the publications were really reprints. The Bureau combined *Business Horizons* articles on one subject and published them in book form.

The State of the State

The other major change during Wentworth's tenure was the extent to which the Bureau worked with state government.

"I would say there was a period of years there when we had probably a closer relationship with the state of Indiana than we ever had before or since," Wentworth said. "We got involved with being a data base for the state to a larger extent. The Bureau had for many years collected local data, but in that period we had a 'state' economist for the first time, and we started getting a degree of sophistication. Of course, at the same time computers were becoming more useful."

A good part of the close relationship with the state was the result of Bonser's returning to the Bureau. He had left in 1963 to become director of the state's commission on tax and financing policy. When he returned in 1965, Bonser had a wealth of contacts in state government.

Another reason for the close relationship between the Bureau and the state was the presence of an economist specifically for the state of Indiana. This was an outgrowth of a position developed when Otteson took over the directorship, a position first filled by John Lewis.

Lewis was the Bureau's business economist, the coordinator of the forecasts the Bureau made, and he wrote many articles for the *IBR*. His writings were nationally oriented, and he received national publicity. In 1962 he was appointed to President Kennedy's Council of Economic Advisers.

Lewis's position was taken by Irvin Grossack, and Robert Turner became the Bureau's economic consultant. All of these men were faculty members in the Department of Business Economics and Public Policy. In 1966, however, the Bureau enlisted an economist specifically to study Indiana. His name was Lawrence Kreider.

"I saw the state as a very important role for the Bureau," Wentworth said. "I felt one of the reasons for the Bureau was to be close to the state, to help the state, to do things for the state that no one else was quite in a position to do."

Kreider's appointment changed the Bureau's emphasis to research centering on Indiana's business and economic environment. That meant a change for the Bureau's oldest publication, the *IBR*. Except in its early years, the *IBR* had a relatively national focus, even after the introduction of *Business Horizons*. Now, however, its emphasis would be on Indiana.

With the creation of the new position, "You had an individual who was dedicated to the state, as Morton [Marcus] now is," Wentworth said. "It obviously created more articles, data, and research devoted to the state."

That change in emphasis led to a change in format for the *IBR*. In fact, it led to one publication being replaced by two.

"We began to see two uses for the *IBR*," Wentworth said. "One was data, which needed to come out monthly at that time. People used it, banks used it, the state used it for budget forecasts. The other was the result of research projects, articles, and so on. We decided to separate the two."

The result was the creation of a Data Supplement, which was published monthly. The *IBR*, meanwhile, was published six times a year.

At the same time a new feature was added. More accurately, an old feature was resurrected. In the January-February 1968 issue, the first in the new format, the *IBR* ran a number of articles containing the outlook for several metropolitan areas in the state. The idea was Bonser's.

"We tried to accomplish a couple of things," Bonser said. "One was trying to get better, closer-to-hand information about what was going on in the major cities in the state. It was also a way to bring the regional campuses in, to make them feel a part of what we were up to."

The metro outlooks did not survive as a regular feature in every issue, but the regional outlooks in today's semiannual forecast issues are their direct descendents.

The Bureau of Business Research did several studies during Wentworth's tenure. One was a major study of the tax system in Indiana.

"The excise tax we now pay on automobiles is a result of that study," Wentworth said. "There was a personal property tax on automobiles, payable on any car you owned on March 1. It was not very sound."

Another major contribution was a $250,000 local economic development study completed for the State Department of Commerce. Other topics studied included the state's library system and court system, migration patterns, and—a subject that would become popular in ensuing years—population projections. Wentworth said that, through these and other, comparatively smaller, studies, the Bureau was trying to get information into the hands of the business community.

"Our greatest service to the industry of the state was information," he said. "We were becoming a repository of data, and the question was how to make it accessible to people. The Data Supplement was one way to do it."

Another way was through the travels of Kreider, the Bureau's Indiana expert and a pathfinder in the Bureau's history.

"Larry had all these charts," Wentworth said. "That was before we really used the computer. We kept them up to date and people would come into our office—bankers, people from all over the state. Larry had his traveling show, and he'd take the charts with him."

In 1970, Morton J. Marcus, the next Indiana economist, came to what was still the Bureau. It wasn't to be the Bureau for much longer, however. In one of Wentworth's last acts as director, he changed its name from Bureau of Business Research to Division of Research.

The Division of Research

"I felt that 'Bureau' was not the right kind of name for what we were doing," Wentworth said. "There were no changes when we did it. The substantive change preceded the name change."

Just after that name change was accomplished, at the end of 1970, Wentworth left the Division. He had continued the leadership style and faculty relationships that Otteson had started and had added a touch of his own personality as well.

"I tried to get the best people we could, and give them a lot of rope," Wentworth said. "I also tried to play an active, visible role. We did a lot of public speaking, talking to various groups around the state.

"I felt that we should become as much involved with the faculty as possible," he added. "I looked at a role of the Bureau as being faculty support. I think we did a reasonably good job of it. If they had a statistical problem or needed data, we had a fairly sophisticated data base. When you're physically removed from the faculty as we were, you need to work at maintaining the contact. But because we were separate, we developed a tremendous esprit de corps within the Bureau."

The Pfister Years

In 1971 Richard L. Pfister succeeded Wentworth as director of the Division. Pfister, who had received his Ph.D. from M.I.T., was a professor of applied urban economics. That was a departure from the previous two directors, Otteson and Wentworth, who were both marketing professors. However, Pfister was no stranger to the Division, having worked closely with both Wentworth and Bonser prior to becoming director.

When Pfister became director, Marcus was continuing work on a project known as the Indiana Information Retrieval System, or INDIRS. This was to serve the state, particularly the Department of Commerce, as part of its economic development program. As Marcus worked with the project, it expanded, becoming a key part of the Division's work.

"It was an opportunity to use the most modern technology that we had available here to develop a comprehensive data base. That base could be quite useful for research purposes but also in the work of government," Marcus explained. "That has become the basic data base on which many of our activities are founded."

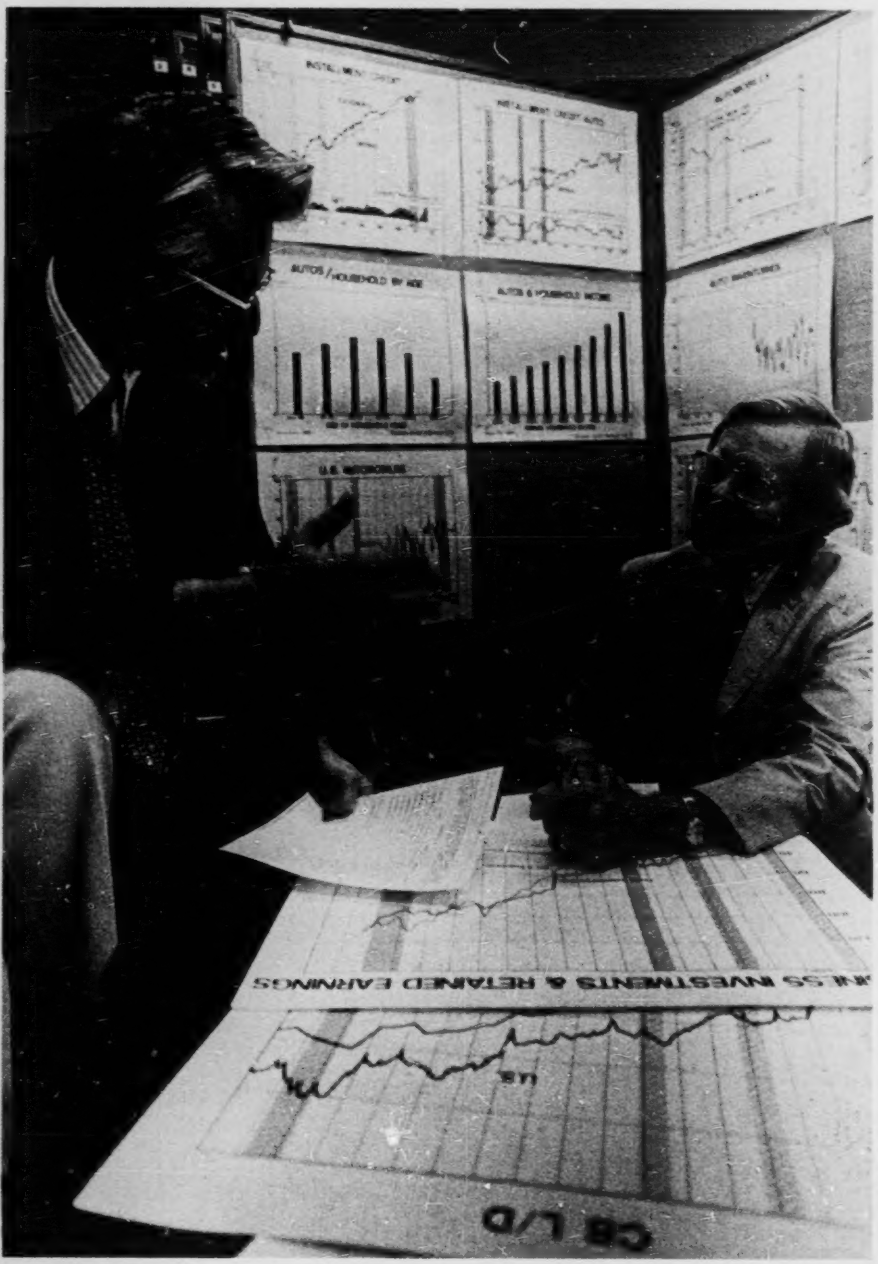
And even though INDIRS as a data base is now established, the ideas that spawned it are still evolving.

By 1972 INDIRS was fully operational. In that year the Division received a federal grant through the Indiana State Library to make the data base accessible by libraries around the state. Sixteen libraries were chosen to receive the necessary equipment and training, so that people in any part of the state would not have to travel far to be able to use INDIRS. Five years later INDIRS went through a major redesign. The first article in the *IBR* using the new INDIRS appeared in the July-August 1977 issue. And even though INDIRS as a data base is now established, the ideas that spawned it are still evolving.

"This year we have a contract with the Indiana Economic Development Council to develop what we are going to call EDIS, the Economic Development Information Sys-

Richard L. Pfister (1973)

60th anniversary issue



H. DONALD DAVID (left) AND RICHARD L. PFISTER CONFER IN THE "CHART ROOM" in the Division of Research (early 1970s). Pfister served as director of the Division and David as its administrative director. Visitors in search of data frequently visited the Chart Room.

tem. It is an outgrowth of INDIRS," Marcus reported.

In 1972, the same year that INDIRS came on line, the Division completed another economic development study, the Indiana State Economic Development Project. In 1973 it finished a study projecting revenues and expenditures for state government. Another project, which continued for several years, involved looking at inflation's impact on the state's institutions of higher education.

But, although the Division was busy, Pfister remembers these years as an era of belt-tightening.

"This period was when budgets began to get tight," he said. "We didn't have a lot of outside funding, and there was a substantial cutting back of the internal funding."

One of the factors that contributed to the money crunch was a change in the state Department of Commerce. "They have always gotten quite a bit of money in the form of federal funds, and at one time they used those funds to contract out their research," Pfister said.

Although the Division did some small studies for the Department of Commerce, Pfister noted a change: "The tendency was beginning for the Department, when they got money for studies, to add staff of their own and to do those studies in house. We had substantially less in the way of research contracts with state agencies than in the previous decade."

The budget crunch also affected the Division's publications program. And that affected the Division's staff, which had expanded to 15 full-time people in the 1960s.

"When budgets got tight, we really cut back on the publications operations," Pfister said. "When I became director, that had already slowed down, and most of the book publishing was a losing proposition anyway. As the book publishing activity slowed down, we had less need for the editorial staff. We never did have a large internal research staff. We relied pretty much on faculty members to direct research projects."

Added to the budget problem was the fact that, as the School's prestige was rising, so was the pressure on professors to perform according to the School's expectations.

"It was more and more difficult for us to get faculty members involved in projects dealing with just state and local issues and topics," Pfister said. "There was tremendous pressure on faculty to publish in refereed journals."

During this period the various publication series died. The *Business Studies* series stopped in 1970, the *Business Information Bulletin* and *Business Paper* series ceased in 1971, and the *Business Reports* series ended in 1973. Very few books were published after 1971, and most of the ones that were published dealt with research projects which would have been done in any case.

The *IBR* continued to evolve. During Pfister's tenure there were several special, one-topic issues. Some of these topics included consumerism, real estate, President Nixon's economic policy, and the 1973 tax package. Another change in format came in 1974, a change prompted by the Indiana Regional Economic Development and Planning Study done by the Division. The metro outlook articles were dropped from most issues. Instead, the semiannual forecast issues included forecasts from the major cities in those regions which had been developed in that planning study.

Business Horizons also underwent a transition in this period. It had changed from a quarterly to a bimonthly magazine in 1968. By 1972 it had stopped selling advertising space.

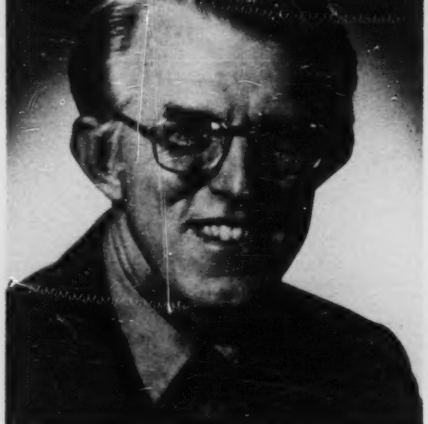
At about this time H. Donald David was appointed to the new position of administrative director. Although David's responsibilities covered almost every aspect of the Division's work, his major efforts, then as now, were directed to faculty support. The Division offered the faculty a keypunching service, a word processing center, the School's Behavioral Laboratory for research purposes, and the Business Computer Center. Another activity that David coordinated was the processing of faculty/course evaluations. He also supervised the *Indiana Readings in Business* publications series. This series consists of materials faculty members want to use in their classes. The material is gathered together and sold to students. The latest reorganization groups these functions under the Academic Support Services umbrella, with David still the director. He also continues as business manager for *Business Horizons*.

Something else changed at this time. In November 1974 the School of Business was reorganized. The Indianapolis and Bloomington programs were combined in one administrative unit. As part of that reorganization, the Division opened an office on the Indianapolis campus. Once again the Division had offices in two cities, just as it had 50 years earlier.

The Indianapolis office was initially staffed by students, but in 1981 Systems and Programming Manager Lowell McCoskey began splitting his time between the two offices. By the beginning of 1985 McCoskey was working at the Indianapolis office full-time.

"We are all one organization," McCoskey emphasized. "In Indianapolis we have systems development, while Bloomington has operations, production, and maintenance." EDIS, which will incorporate parts of INDIRS and other systems, is the newest information system to be developed in Indianapolis.

Although some research in this area also goes on in Bloomington, one distinctive feature of the Indianapolis operation is its survey work. Surveys and Information Coordinator Terry Creeth runs what is part faculty support and part public service.



H. Donald David (1973)

"We've worked with the School of Liberal Arts, the School of Business, Labor Studies, and we've done survey work outside," Creeth said. "We've done work for the Indiana Arts Commission, realtors, lumbermen, and so on."

It is possible that the IBRC's survey work, which began in 1982, will be its fastest growing function.

"People are realizing the importance of the service we provide," said Creeth, "and I think the demand for it will grow. Those services are appreciated. We get positive feedback, and we get referrals, too."

By 1975 Pfister was a very busy man. He was Division director, he was head of the Institute for Applied Urban Economics, and he taught classes as well. Something had to give, and Pfister resigned as director in the summer of that year.

Pfister was not replaced as director. Instead, Marcus assumed overall responsibility for the *IBR* and research activities, while David assumed overall responsibility for many administrative and other functions.

"That system worked and worked well right up until the present," Marcus said. "When you've got something working well, you don't fill another administrative position."

Projecting Populations

The Division was not only working well, it was also working hard. In 1976 another important study was finished. Working with the State Board of Health, the Division projected the population growth of each Indiana county until the year 2000. The projections were broken down into 17 age groups. This continued a study begun under Wentworth, but it used the 1970 census data, the most current available.

But the 1976 study marked only the beginning. The projections were revised in 1978, and a series of projections broken down by township were published in 1979. In 1983 the county projections were revised yet again, this time using 1980 census data,

60th anniversary issue

Morton J. Marcus (1984)

and currently the township projections are being updated. According to Marcus, population projections are among the most important work that the Indiana Business Research Center does.

"Anyone who's planning capital facilities—meaning a sewage facility, a shopping center, or housing—wants to have some information about the future of the population in that part of the state," Marcus said, adding that the Center is the perfect entity to conduct such a study.

"If these studies are done by each locality, there is strong political and social pressure to 'make my town look good.' When we do them," Marcus explained, "we have no particular biases about an area of the state."

"If these studies are done by each locality, there is strong political and social pressure to 'make my town look good.' When we do them," Marcus explained, "we have no particular biases about an area of the state."

Once the projections are done, Marcus said, they become the basis for decisions about many building projects, not only governmental projects but private ones as well.

In the years following 1976 the Division studied taxes, warehousing in Indianapolis, dental productivity, and the licensing of electrical contractors. In 1980, however, came a monumental project—the Econometric Model of Indiana.

The Econometric Model

This project had first surfaced during Pfister's tenure, but it was put on the back burner until the School could fund it. Once the funding was there, Pfister and Marcus worked with R. Jeffery Green, a professor in the economics department, to devise the Econometric Model.

While the Indiana General Business Index charted where the state's economy had been, the Econometric Model tries to find out where it will be going.

"We started trying to do short-term forecasting—what is going to happen in Indiana in the next few years," Marcus said. "We tried to look at various employment and income factors in detail, and we were very successful, with the support of major utilities in the state of Indiana, in financing our activity. So we were able to provide a comprehensive quarterly forecast of the state economy."

The project was completed, or as much completed as a changing model can be, in 1981. It was deemed important enough that Indiana University President John Ryan's report to the governor led off with a discussion of the Division. The model also is used routinely in putting out the quarterly forecasts. Two of the forecasts are used each year in the semiannual *IBR* forecast issues. What might be particularly important, at least to the future of the Indiana Business Research Center, is the way the model was funded.

"In a way that's a departure and an innovation, because we are now doing some work with private-sector funding," Marcus said. "And that is very important. It looks like we are not going to be able to depend as much in the future on public-sector funding as we did in the past, so we are going to have to find ways of doing work for the private sector.

"If we can maintain the integrity of the School's tradition and still have private-sector funding, I think we will have helped the state," Marcus added.

"If we can maintain the integrity of the School's tradition and still have private-sector funding, I think we will have helped the state," Marcus added.

Lionel Edie and George Starr, the Bureau's first directors, would recognize one source of private-sector funding that the IBRC has today. Three Indianapolis banks—the Indiana National Bank, Merchants National Bank and Trust Company, and the Bureau's old friend, American Fletcher National Bank and Trust Company—are cosponsoring the IBRC's publication of the *Indiana Factbook*, due out early next year.

Changing Needs

The Econometric Model was introduced in the February 1981 issue of the *IBR*. That same month *Business Horizons* went through its first real style change in 13 years. And style change in the *IBR* was not far behind.

"It was Don David's excellent suggestion that the Data Supplement stop being just numbers and that we put text to it every month," Marcus said. "We did that for several years, but the cost of postage and the cost of preparation and the amount of time that was involved made it almost impossible to continue, especially during the period when we were getting fewer and fewer resources."

So the Data Supplement was dropped, and the *IBR* went back to its old ways. Now it came out 11 times a year instead of monthly. But soon it became obvious that even this changed format, which began in January 1982, wouldn't work.

"We had the same kinds of problems," Marcus said. "How do we meet a monthly deadline when we don't have a staff, when we don't have the organization to do that?"

Gradually the number of issues per year was dropped to six. And eventually the tables that had been in the journal from the beginning were dropped, to be published only if space was available. Marcus said that the tables were dropped, at least in part, because the world had changed.

"Today you can pick up a newspaper and get a lot of the information we used to publish," he explained. "Our role now has to be much more analytic. And it has to involve providing information within a context as opposed to just laying out numbers."

One project currently under consideration at the IBRC is a step in that direction. "What we are trying to do right now is to work with a few communities to see whether we can provide better local information by reviving some of what we used to do many years ago, but in a new format, recognizing the electronic technology," Marcus said.

"We are trying to investigate the possibility of having a Chamber of Commerce collect its own data," he explained. "We would build a set of progams that they could use on their computer to produce a local Business Index. What we can do is prepare materials for others to distribute. At the same time we can work on the analytical techniques, we can work on implementation techniques that would help a Chamber of Commerce and other agencies collect information and process that information locally."

All of this is part of an evolution the Indiana Business Research Center is going through because of the technological change in the world today. That change will continue to affect the IBRC for years to come.

"I see us continuing the tradition of trying to provide information about the state of Indiana as we do now," Marcus said. "The nature of the information will change as there are changes in technology and changes in the concerns that people have. It may very well be that we will have to get much more heavily involved in international data, because the economy of Indiana is an international economy. I don't see any fundamental changes. I see a great deal of change in technological possibilities."

The change of name has not changed some historical attitudes within the organization, particularly in three areas: state government, relationships with faculty, and AUBER.

"I see us continuing the tradition of trying to provide information about the state of Indiana as we do now," Marcus said. "The nature of the information will change as there are changes in technology and changes in the concerns that people have."

State government. "State universities ought to work closely as a sort of research arm of the government," Marcus said. "They can be independent, and they help guide policy."

Relationships with faculty. "It is a question of developing a relationship with faculty members so that their particular skills can be brought into place," Marcus emphasized. "It takes time to develop those relationships, and it takes a reward system within the university that says to faculty members, 'If you work on an Indiana-related project and produce a report that is not published in a professional journal, you will still be recognized for that.' We do find more faculty response today than, say, five years ago."

AUBER. Marcus, like his predecessors, is active in the Association of University Bureaus of Economic Research, or AUBER. Otteson was one of the people who founded the organization, and Wentworth is a lifetime member and past president. In fact, Wentworth changed the organization's name from Association of University Bureaus of Business and Economic Research to its present name. Noting that Wentworth also changed the Bureau of Business Research to the Division of Research, Marcus mused, "I wonder if, as dean, he'll change the name of the School."

On a more serious note, Marcus said that membership in the 140-member organization provides some important benefits to the Center.

"The main AUBER benefit to us is that we get to learn how other organizations operate," he said. Part of that benefit helped the Division decide how to fund its Econometric Model projct. Marcus has chaired several AUBER committees and served on the organization's board of directors. In 1988 AUBER's annual fall conference will be held in Indianapolis.

One of Marcus's enduring contributions to the Center is the level of publicity it has received since he became the research economist. Marcus has traveled to every one of Indiana's 92 counties and given presentations in almost all of them. Those presentations are frequently given extensive coverage in local papers, and he is just as frequently asked by various members of the state's media to comment on almost anything that affects the state's economy.

"Radio, TV, and newspaper people are much more sensitive to economic news now," Marcus said. "So a person in this position is going to receive many more calls from the press. Not that others have been retiring souls by any means, but I feel very much at ease doing that kind of thing. I see the advantages that are involved in giving good visibility to the organization, based on a solid record of credible research."

Many Things to Many People

The Bureau and the Division have been many things to many people. Bonser, who served both as a graduate assistant and as associate director, has fond memories.

"I think the Bureau and the Division have played an important role for the School, up until today," Wentworth said. "It plays a different role today than it did, and it will probably play a different role tomorrow, but that's as it should be."

"I think the Bureau was always a great training ground for people," Bonser said. "There were a lot of really good folks who passed through it over the years. It provided a way for them to get support to go to graduate school, but at the same time to have some real business-like experience."

Wentworth, as director of the Bureau and now as dean of the School, sees its importance in a different way.

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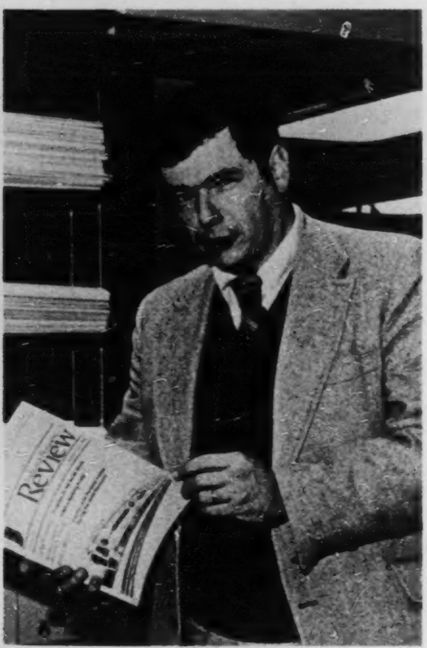
With the Division separated into two departments now, the roles probably will be different. It might be easier, however, for people to understand what those functions are.

"Few people have a real understanding of what we do," Marcus said before the Trustees acted to form two entities from one. "Within the organization people tend to see very narrow pieces of it. Outside the organization you get a very, very different view. We get phone calls. A woman called up and said, 'I've got a tree that seems to be dying. What should I do?' My response was, 'Call Purdue, and they'll send somebody out.' "

The Indiana Business Research Center staff may not get phone calls like that anymore, but it will continue the 60-year tradition of research to help Indiana's economy, and thereby to help all Indiana residents. ☐



Morton J. Marcus examines a copy of the *Indiana Business Review*.

Indiana's Gross State Product

Janet L. Fedde

Janet L. Fedde is a research assistant at the Indiana Business Research Center. Programmer for this project was Robert L. Plummer, and graphics were provided by Richard R. Brandt.

Estimates of Gross State Product (GSP) provide a useful basis for economic analysis and forecasting. Simply stated, GSP is a rough measure of the economic activity within a state; what GNP is at the national level, GSP is at the state level. This article provides information about Indiana's GSP for the years up to and including 1982. Previous *IBR* articles by Louis J. West[1] and Henry Fishkind[2] dealt with data from 1977 and earlier.

The method employed is consistent with previously published numbers and relies on the J. W. Kendrick and C. M. Jaycox value-added estimation technique. This method is used because value-added data are not always readily available at the state level and must be estimated. The state's share of personal income by sector times the value of output by share (which is its GNP) is used to derive a simplified measure of Gross State Product. The formula for all categories except farm and government output is:

$$GSP_{t,i} = GNP_{t,i} \times [IR(state)_{t,i}/IR(U.S.)_{t,i}]$$

where:

t = the year;

i = the industry sector;

GNP = gross national product, consisting of the sum of national income (NI), plus capital consumption allowances (CCA), plus indirect business taxes (IBT);

IR (state) = personal income at the state level; and

IR (national) = personal income at the national level.

The GSP value of the farm sector consists of the difference between the value of output and purchases such that Total Farm Output =

OUTPUT
Cash Receipts
plus *nonmoney income*
plus *net change in inventories*
PURCHASES
minus *expense for feed, livestock, and fertilizer*
minus *repairs and operation of equipment*
minus *net rent paid to nonoperator landlords*
minus *miscellaneous operating expense.*

The other formula needed to complete the GSP calculation is gross state government product. It is also based on a simple share calculation and is defined as the state's share of wage and salary disbursements times this sector's GNP.

$$\text{Govt. Output} = GNP_{ln} \times (WSD_{ls}/WSD_{ln}) + GNP_{fn} \times (WSD_{fs}/WSD_{fn})$$

where:

WSD = wage and salary disbursements;

l = local government;

n = national;

s = state;

f = federal government, both civilian and military.

Total GSP is then an aggregation of the individual formulas by industry.

Since 1960, Indiana's GSP of $13 billion has grown more than 380% to the current 1982 estimate of $63 billion. Until 1970, nominal GSP was increasing in excess of 30% every five years. After 1970, the GSP grew at better than 50% every five years. This is not surprising, given the increase in national inflation during this time.

Several tables and figures have been constructed to display GSP figures. **Table 1** reflects current (or nominal) dollars (in millions) of GSP for each industry sector and the total for the state. Since 1960, Indiana's GSP of $13 billion has grown more than 380% to the current 1982 estimate of $63 billion. Until 1970, nominal GSP was increasing in excess of 30% every five years. After 1970, the GSP grew at better than 50% every five years. This is not surprising, given the increase in national inflation dur-

(continued on page 18)

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[1] Louis J. West, "Indiana's Gross State Product," *Indiana Business Review*, February 1980: 9-11.

[2] Henry H. Fishkind, "Indiana's Gross Domestic State Product, 1954-72," *Indiana Business Review*, July-August 1974: 1-5.

Table 1

· Millions of Current (Nominal) Dollars of GSP by Industry

Sector	*1960*	*1965*	*1970*	*1974*	*1978*	*1979*	*1980*	*1981*	*1982*
Mining	171.0	164.8	197.0	346.2	565.5	781.1	1,008.4	1,170.4	1,211.9
Construction	568.2	861.2	1,221.9	1,607.9	2,527.8	2,830.4	2,685.7	2,589.6	2,539.1
Manufacturing	5,382.9	7,743.3	9,597.4	13,471.3	20,427.0	21,603.0	20,673.7	22,775.6	21,156.2
Finance, insurance, and real estate	1,517.1	2,025.6	2,801.4	3,923.4	5,936.9	6,592.0	7,085.6	7,530.9	7,983.6
Transportation, communication, and utilities	1,101.6	1,432.1	1,929.4	2,757.6	4,273.0	4,539.3	4,803.5	5,375.4	5,673.5
Services	920.8	1,294.4	2,065.3	3,015.2	4,701.6	5,138.4	5,858.4	6,497.0	7,153.5
Wholesale and retail	1,939.4	2,614.9	3,801.7	5,391.0	8,085.8	8,830.4	8,996.3	9,675.5	9,643.9
Government product	854.7	1,269.4	1,971.1	3,258.3	3,844.9	4,224.5	4,678.9	5,060.9	5,344.5
Farm	661.7	842.3	867.0	1,395.1	1,851.9	2,430.5	2,281.1	2,274.5	2,224.1
Other	18.9	25.6	40.5	58.1	84.9	93.0	103.3	115.4	128.7
Total	**13,136.8**	**18,274.0**	**24,493.2**	**35,224.5**	**52,299.7**	**57,063.0**	**58,175.3**	**63,065.7**	**63,059.6**

Detail may not add to total because of rounding.

Figure 1

Gross State Product for Indiana in Billions of Current (Nominal) Dollars

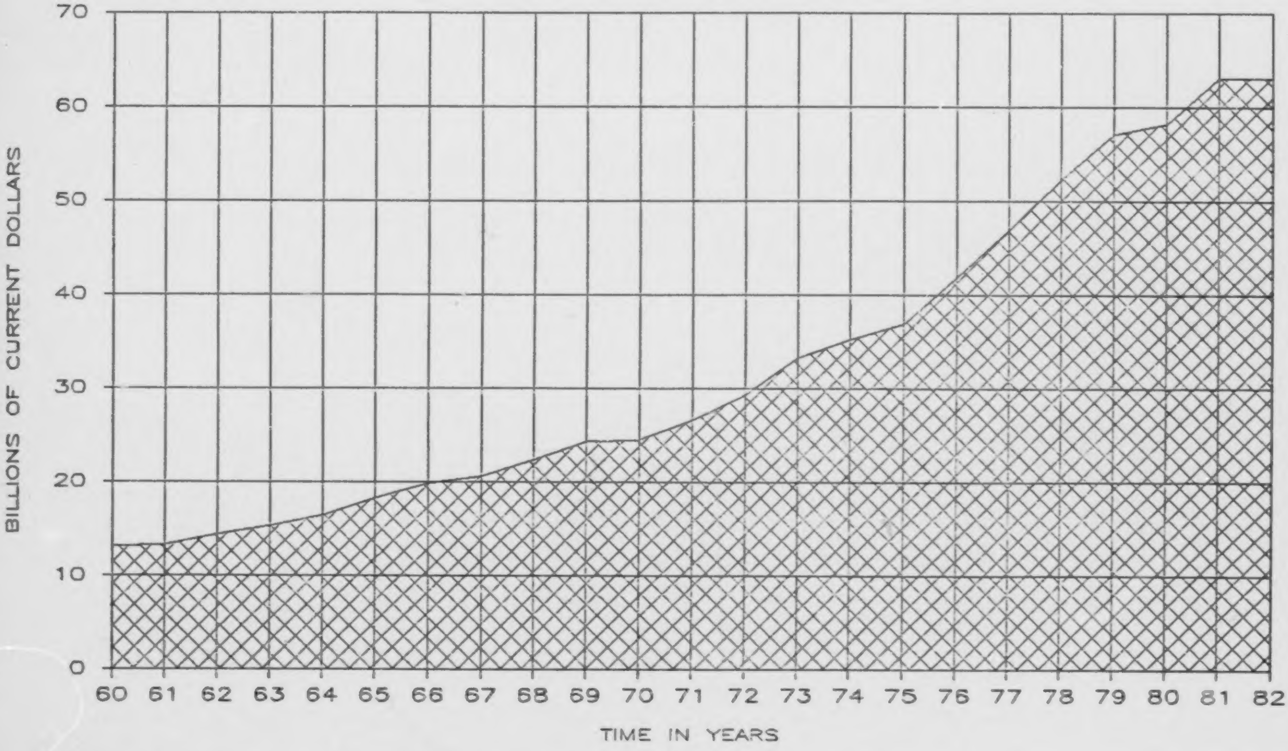

Table 2

Millions of Constant (1972) Dollars of GSP by Industry

Sector	*1960*	*1965*	*1970*	*1974*	*1978*	*1979*	*1980*	*1981*	*1982*
Mining	183.3	191.8	211.6	206.7	216.6	243.6	226.5	208.4	225.6
Construction	1,127.4	1,428.2	1,334.0	1,238.7	1,487.8	1,424.4	1,171.2	1,049.7	988.7
Manufacturing	6,431.2	9,273.4	9,935.2	12,325.1	14,048.8	14,073.6	12,476.6	12,766.6	11.271.3
Finance, insurance, and real estate	2,173.5	2,654.8	3,065.0	3,583.0	4,189.8	4,220.2	4,187.7	4,003.6	3,950.3
Transportation, communication, and utilities	1,380.5	1,738.0	2,136.7	2,511.5	2,977.7	3,032.3	2,890.2	2,927.8	2,817.0
Services	1,560.7	1,884.2	2,284.6	2,661.2	3,041.1	3,108.5	3,234.9	3,331.8	3,377.4
Wholesale and retail	2,635.1	3,387.2	4,023.0	4,576.4	5,489.3	5,484.7	5,126.1	5,113.9	4,878.0
Government product	1,723.3	2,115.7	2,310.8	2,875.8	2,585.7	2,632.1	2,696.8	2,666.4	2,612.2
Farm	957.5	1,145.9	1,045.8	928.8	1,050.4	1,160.6	1,180.0	1,139.5	1,169.3
Other	43.9	41.9	46.1	53.2	51.6	52.1	55.0	60.4	65.7
Total	**18,216.4**	**23,861.1**	**26,392.8**	**30,960.4**	**35,138.8**	**35,432.1**	**33,245.0**	**33,268.1**	**31,355.5**

Figure 2

Gross State Product for Indiana in Billions of Constant (1972) Dollars

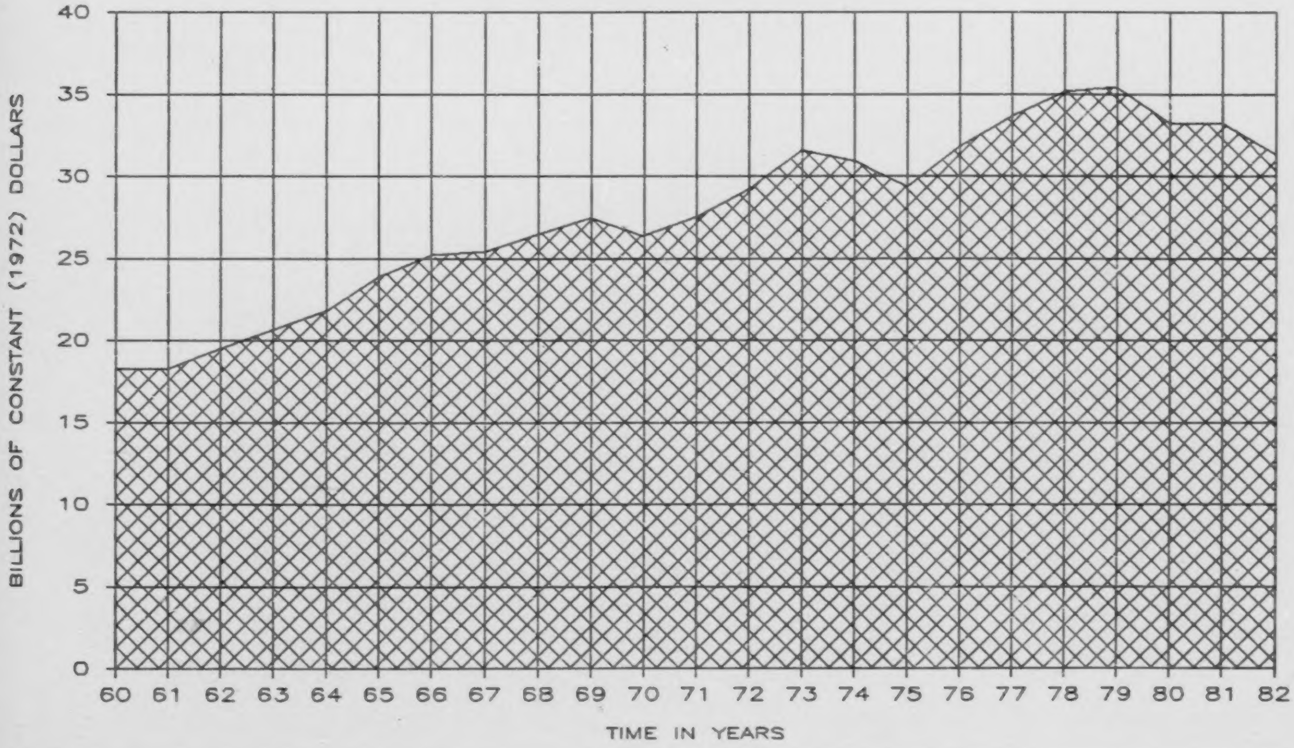

Table 3

Indiana Percent of U.S. GNP by Industry

Sector	*1960*	*1965*	*1970*	*1974*	*1978*	*1979*	*1980*	*1981*	*1982*
Mining	1.359	1.220	1.118	1.074	1.086	1.169	1.050	0.884	0.968
Construction	2.444	2.625	2.496	2.323	2.475	2.445	2.242	2.109	2.052
Manufacturing	3.742	3.916	3.805	3.954	3.938	3.835	3.555	3.539	3.355
Finance, insurance, and real estate	2.118	2.067	1.966	1.942	1.870	1.839	1.777	1.673	1.625
Transportation, communication, and utilities	2.403	2.365	2.252	2.244	2.210	2.165	2.071	2.058	2.021
Services	1.871	1.827	1.804	1.800	1.768	1.698	1.710	1.668	1.660
Wholesale and retail	2.303	2.322	2.282	2.232	2.231	2.199	2.098	2.040	1.969
Government product	1.810	1.877	1.700	2.008	1.677	1.702	1.714	1.690	1.649
Farm	3.279	3.847	3.363	2.922	3.152	3.395	3.370	2.814	2.962
Other	1.582	1.351	1.397	1.322	1.179	1.163	1.135	1.215	1.262
Total	**2.612**	**2.666**	**2.485**	**2.490**	**2.459**	**2.407**	**2.249**	**2.171**	**2.084**

Figure 3

Indiana's Percentage of Total U.S. GNP

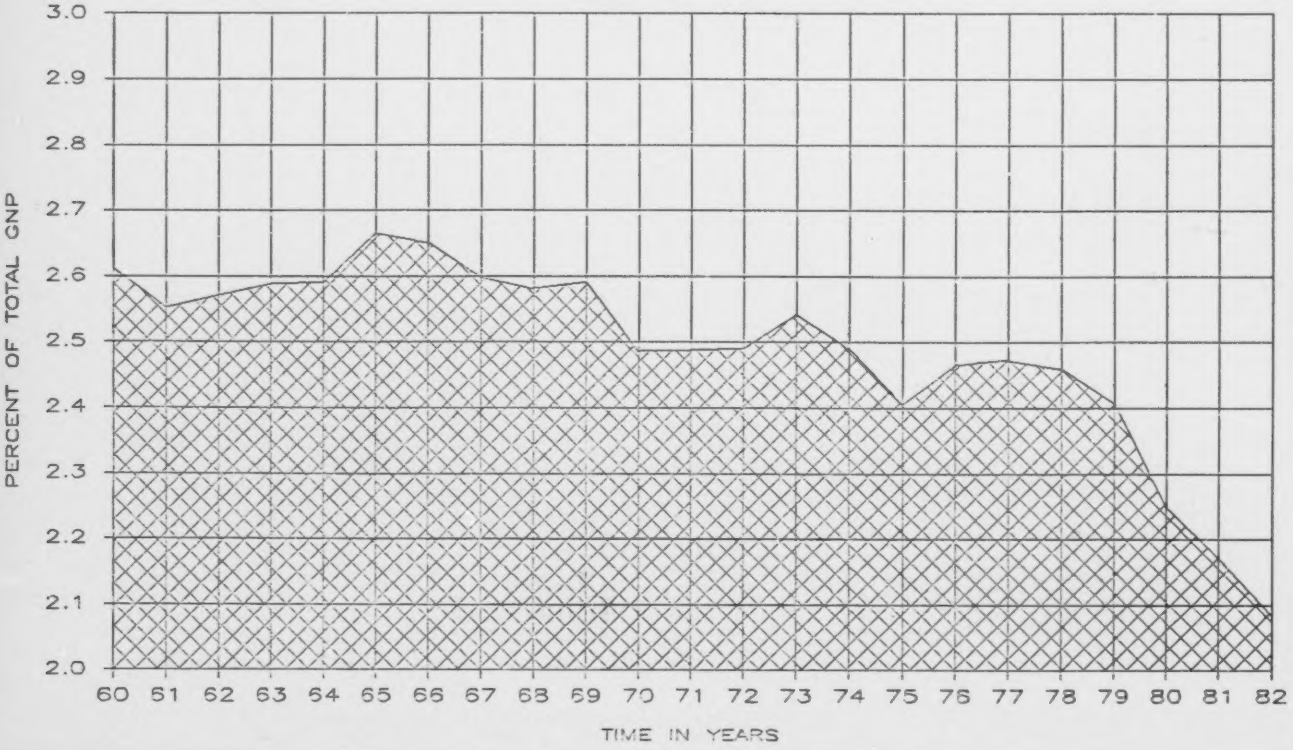

Table 4

Rate of Growth Using Constant Dollars

	1978	1979	1980	1981	1982
Mining	0.7	12.4	− 7.0	− 8.0	8.2
Construction	8.3	− 4.2	−17.8	−10.4	− 5.8
Manufacturing	4.5	0.2	−11.3	2.3	−11.7
Finance, insurance, and real estate	5.4	0.8	− 0.8	− 4.4	− 1.3
Transportation, communication, and utilities	5.9	1.8	− 4.7	1.3	− 3.8
Services	3.7	2.2	4.1	3.0	1.4
Wholesale and retail	6.6	− 0.1	− 6.5	− 0.2	− 4.6
Government product	3.1	1.8	2.5	− 1.1	− 2.0
Farm	−12.6	10.5	1.7	− 3.4	2.6
Other	10.0	1.1	5.5	10.0	8.6
Total	**4.0**	**0.2**	**− 6.6**	**− 0.1**	**− 5.4**

(continued from page 14)

ing this time. **Figure 1** shows Indiana's GSP from 1960 to 1982 in billions of current dollars.

Table 2 restates Table 1 in terms of constant 1972 dollars. It indicates a steady real growth in Indiana's economy from 1960 through 1979, with a slight downturn in the recession years of 1970-71 and 1974-75. Since 1979, Indiana's real GSP has fallen from $34.1 billion to $31.4 billion in 1982. This 13% decline is largely the result of a 31% decrease in construction and a 20% decrease in the manufacturing sector. **Figure 2** shows Indiana's GSP from 1960 to 1982 in terms of constant (1972) dollars.

Table 3 expresses each category as a percentage of its respective U.S. GNP category. **Figure 3** presents the same data in graphic form. Indiana's share of national GNP averaged between 2.5% and 2.6% from 1960 through the early 1970s. However, in 1970 the percentage decreased to 2.48%; in 1973 it rallied to 2.54%. In 1974 it again decreased to the 2.4% range, where it stayed until 1980. In 1980 it declined to 2.249%, in 1981 to 2.171%, and in 1982 to 2.084%. These declines indicate that Indiana's econ-

(continued on page 20)

Figure 4

Growth Rate of Indiana GSP Using Current Dollars

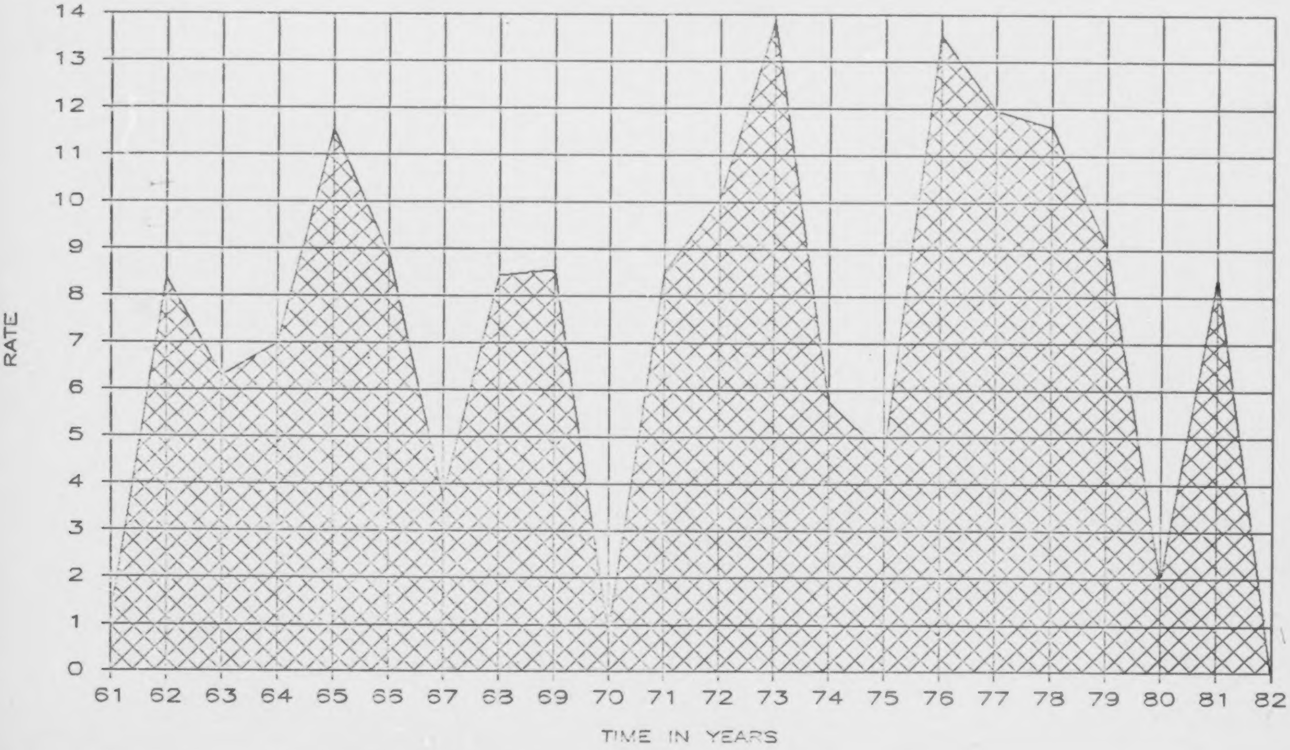

Table 5

Industry Share of Indiana Total

Sector	*1960*	*1965*	*1970*	*1974*	*1978*	*1979*	*1980*	*1981*	*1982*
Mining	1.3	0.9	0.8	1.0	1.1	1.4	1.7	1.9	1.9
Construction	4.3	4.7	5.0	4.6	4.8	5.0	4.6	4.1	4.0
Manufacturing	41.0	42.4	39.2	38.2	39.0	37.8	35.5	36.1	33.6
Finance, insurance, and real estate	11.6	11.1	11.4	11.1	11.3	11.5	12.2	12.0	12.7
Transportation, communication, and utilities	8.4	7.8	7.9	7.8	8.2	7.9	8.3	8.5	9.0
Services	7.0	7.1	8.4	8.6	9.0	9.0	10.1	10.3	11.3
Wholesale and retail	14.8	14.3	15.5	15.3	15.5	15.5	15.5	15.3	15.3
Government product	6.5	6.9	8.1	9.2	7.4	7.4	8.0	8.0	8.5
Farm	5.0	4.6	3.5	4.0	3.5	4.3	3.9	3.6	3.5
Other	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Figure 5

Percentage of Total Indiana Industry for 1982 by Industrial Sector

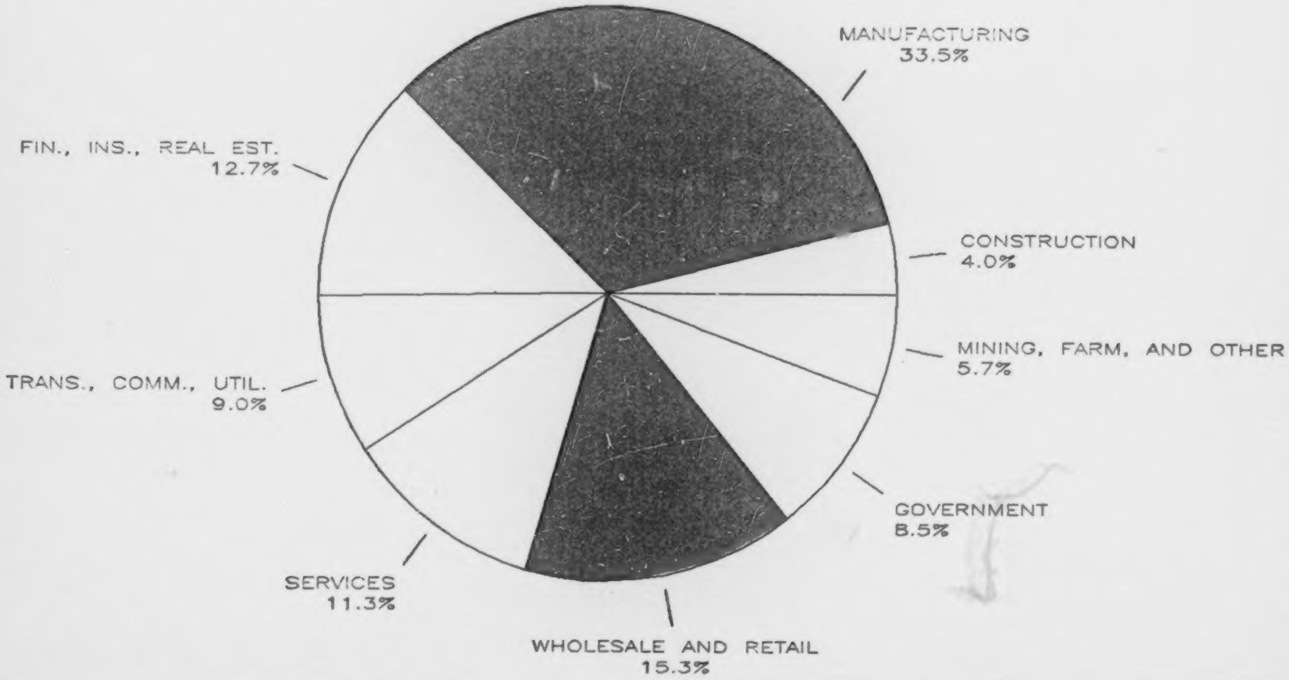

Table 6

Gross State Product by Industry: Comparing the Bureau of Economic Analysis with the Indiana Business Research Center

The Bureau of Economic Analysis recently published experimental estimates of Gross State Product by Industry. The table below compares the Bureau's results with those of the Indiana Business Research Center. As this comparison shows, the figures are roughly comparable. The IBRC's number in the most recent year is within .4% of the Bureau's number.

	1963			*1977*		
	BEA	*IBRC*	*BEA/IBRC*	*BEA*	*IBRC*	*BEA/IBRC*
	(millions of dollars)			*(millions of dollars)*		
Mining[1]	117	180	.650	284	529	.537
Construction[2]	638	624	1.022	1961	2154	.916
Manufacturing	6744	6361	1.060	17842	18355	.972
Fin., ins., real estate	2036	1776	1.146	5558	5215	1.066
Trans., comm., util.	1361	1244	1.094	4235	3829	1.106
Services	1087	1098	.990	4178	4232	.987
Whole/retail	2251	2228	1.010	7294	7227	1.009
Govt. prod.	1143	1061	1.077	3793	3507	1.082
Farm	700	722	.970	1822	1733	1.051
Other	24	23	1.043	79	76	1.037
TOTAL	**16101**	**15317**	**1.051**	**47046**	**46857**	**1.004**

Total GSP for the two other reported BEA years

	1967	*1972*
BEA	21,363	29,755
IBRC	20,634	29,259
BEA/IBRC	1.035	1.017

1. Part of the difference in mining is that BEA deducts from value added capital account charges for exploration and development, exclusive of labor expenditures
2. Construction is adjusted by deducting the rent construction firms pay for machinery and equipment. BEA also goes through an adjustment process whereby it assigns value added in construction to the state in which the construction firm is established, which is not necessarily where the construction is performed.

(continued from page 18)

omy was more sensitive to recessions than was the national economy as a whole. The main contributors to Indiana's decreased share of the U.S. GNP are the declines in manufacturing and farm products.

Figure 4 expresses the rate of growth of Indiana GSP in current (nominal) dollars, while **Table 4** shows the percentage changes from 1978 to 1982 expressed in constant 1972 dollars. The negative growth years were consistent with the recession years of 1970, 1974-75, and 1980-82. The 1980-82 period is Indiana's longest period with no growth since 1960. Big losers during this period, as Table 2 indicates, were construction and manufacturing.

Table 5 exhibits each industry as a percentage of the total Indiana GSP. As **Figure 5** shows, manufacturing and wholesale and retail trade are the largest percentages and account for almost 49% of the total 1982 GSP. Since 1960, manufacturing as a percentage of the total has decreased by more than 7.4%, while the service sector has increased more than 4.3%. The farm sector showed only a 1.5% decline during the decade starting in 1960, but during the 1970s this category increased its share of Indiana's economy by 0.4%. This upturn was not sufficient, however, to offset the total loss for the period from 1960 to 1982 of 1.5%.

The Bureau of Economic Analysis recently published experimental estimates of GSP by industry. **Table 6** compares the BEA's results with the figures that we here at the IRBC have derived using the formulae described earlier. If the federal government continues its GSP estimating program, current and consistent data may be readily available from that source. ☐

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The National Outlook

Bruce L. Jaffee	The Economic Outlook for 1986: Continued Slow Growth, But a Recession Is Unlikely
Eugene A. Brady	**Consumption Spending Outlook**
R. Jeffery Green	**The Investment Outlook**
Lawrence S. Davidson	**Monetary and Fiscal Policy Outlook**
Joseph C. Miller	**Net Exports Outlook**
William L. Sartoris	**Outlook for Interest Rates**
Jack R. Wentworth	**Outlook for the Automotive Sector**
Fred Bateman	**Sectoral Changes**
Jeffrey D. Fisher	**Real Estate Outlook**

The Indiana Outlook

Richard L. Pfister	Indiana's Economy in 1986: Not Great But Not Bad
Robert Kirk	**Indianapolis**
Thomas L. Guthrie	**Fort Wayne**
Fay Ross Greckel	**Jeffersonville-New Albany (Louisville Area)**
Marvin Fischbaum	**Terre Haute**
John E. Peck	**South Bend-Elkhart**
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Robert R. Jost	**Anderson-Muncie**

The Economic Outlook for 1986: Continued Slow Growth, But a Recession Is Unlikely

Bruce L. Jaffee

Associate Professor of Business Economics and Public Policy, Indiana University, Bloomington

The current economic recovery, which began in November 1982, has now celebrated its third anniversary. If growth continues throughout 1986, the current expansion will become the third longest of the eight post-World War II expansion periods. We believe that this outcome is likely, although growth will be moderate and mixed in the year ahead.

Constant dollar (real) GNP grew at a 6.8% rate in 1984, and it now appears that the growth rate for 1985 will be approximately 2.5%. In 1986 we expect that the growth rate will increase and fall into the moderate 3-4% range. Inflationary pressures are expected to increase in 1986 due to a weakening in the value of the dollar, rapid growth in the money supply, and continued expansion of the economy. Nonetheless, the inflation rate is likely to be in the 4-5% range for 1986, which is substantially below the average of the last ten years. If oil prices continue to decline, the inflation rate is likely to be at the low end of this range because of the important direct and indirect effect of energy on our price indexes.

Real consumer spending is expected to grow by about 3% in 1986, a rate approximately equal to the expected growth in personal income. In recent years spending growth has exceeded growth in personal income as the savings rate has declined and consumer credit has increased. However, in 1986 we expect the savings rate to rise from its current level, and we believe that the current personal debt burden will not retard spending growth.

Compared to its level in other business recoveries, the unemployment rate has remained high in this expansion. The rate should decline modestly in 1986 and be in the 6.5-7.0% range for most of the year. On the other hand, the employment rate is likely to remain near peace-time record levels, and labor productivity should increase markedly from its poor performance in 1985.

The preceding forecast represents the most likely course for the economy in 1986, according to the Business Outlook Panel. However, as suggested by the detailed sectoral reports that follow, there is considerable down-side risk in our forecasts. If monetary policy, fiscal policy, and the foreign sector do not perform as we predict, growth could be more modest than our expectations. ☐

Consumption Spending Outlook

Eugene A. Brady

Professor of Business Economics and Public Policy, Indiana University, Bloomington

Critical to any economic outlook is consumption spending, which amounts to about two-thirds of GNP. In large part, consumption spending is responsible for the fact that we recently have celebrated the third anniversary of the recovery. To date, we have had a steady expansion of consumption spending, and in the first half of 1985 consumption spending rose at an annual rate of 8.2% (nominal), even though a good portion of it was for goods produced abroad.

One of the biggest issues regarding future consumption spending is the impact of existing consumer installment credit outstanding. The consumer debt issue has been hotly debated in many financial publications. The most common measure of consumer debt is outstanding installment credit as a proportion of disposable personal income. This proportion recently hit a record high of debt amounting to 18.7% of income. Many economists feel that consumption spending must taper off as consumers start paying off their debt. However, consumers don't seem to be doing this. The latest savings figures indicate that consumers are saving about 2.5% of their incomes, the lowest fraction since the Government started keeping records in the postwar period.

In this issue . . .

The Indiana University School of Business is pleased to present in these pages its annual Business Outlook. Each year a committee develops the Outlook for presentation throughout the state. Individual panelists have distinctive views based on a generally held belief about the direction of economic activity.

This year, under the chairmanship of Bruce Jaffee, the committee has had more structure without much more discipline. We believe that the following individual views blend together into a coherent economic forecast for 1986.

As in the past, we also offer the reports and observations of writers from throughout the state of Indiana. Each contributor enriches this publication by a different style and a different perspective.

For the good efforts of all we are deeply grateful. For the forecasts of each we are not responsible. For the continued well-being of our readers we remain ever hopeful.

M.J.M

Indiana Business Review

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Consumers are saving about 2.5% of their incomes, the lowest fraction since the Government started keeping records in the postwar period.

Those who are bearish on future consumption spending say the new peak in the debt-to-income ratio is higher than the last peak, which was reached in 1979, and we all know what happened between 1980 and 1983. They argue that the current record low savings rate, coupled with the record debt/income ratio, will force households to cut consumption and increase savings in the quarters ahead.

To measure consumer debt, the Federal Reserve takes all loans with finite maturities and adds to the principal unpaid amount of the loan all future interest payments, undiscounted. This calculation doesn't take into account the average maturity of the loans, and it is clear that the amortization period of consumer loans has lengthened considerably over the last few years. Automobile loans make up about 40% of total consumer indebtedness; the average auto loan has had its amortization period increased from something less than three years in 1980 to well over four years (51 months) for 1985. Although absolute debt has increased, the amount of loan *payments* to *income* is well below what it was in 1980. By this measure there is still a lot of borrowing slack for consumers.

Although absolute debt has increased, the amount of loan payments *to* income *is well below what it was in 1980. By this measure there is still a lot of borrowing slack for consumers.*

In a demographic sense, the proportion of big borrowers in the U.S. economy has been steadily growing since 1970. At the present time, a greater proportion of our population is in the 25-to-44 age bracket. As Nobel Prize-winner Franco Modigliani has shown, this age bracket is in the high borrowing category.

Delinquency rates are mixed. Mortgage delinquencies are up, while delinquencies for consumer installment credit are down.

Indices of consumer sentiment for 1984 and so far in 1985 are almost up to where they were in the golden mid-1960s. According to recent surveys, about two-thirds of consumers feel that the coming quarters will be good ones in which to purchase houses, cars, and durables. □

The Investment Outlook

R. Jeffery Green

Professor of Economics, Indiana University, Bloomington

Investment spending comprises (1) expenditures by firms for new plant and equipment, (2) expenditures for new housing (residential investment), and (3) investment in inventories. Each of these components has been a major contributor to the pattern of recovery since the end of 1982.

Plant and equipment spending in constant dollars grew at an average annual rate of 15.0% from the end of 1982 to the end of 1984. This growth was a major reason for the strength of the recovery in its first two years. From the end of 1984 to the third quarter of 1985 (the latest data available), plant and equipment spending rose at an annual rate of only 2.4%. Hence it contributed to the overall sluggish growth in the economy in early 1985.

Likewise, **residential investment** in constant dollars increased at an annual rate of 20.4% from the end of 1982 to the end of 1984, but it grew at only a 7.5% annual rate over the most recent three quarters.

Finally, **inventory investment** in constant dollars went from a decumulation of $24.6 billion at an annual rate in the final quarter of 1982 to an accumulation at a rate of $16.8 billion in the final quarter of 1984 before falling to near zero in the third quarter of 1985. Thus, all the components of investment spending contributed both to the sharp upturn in 1983-84 and to the subsequent sluggish period in 1985.

Why did investment spending slow in 1985? One major factor is the recent pattern of corporate profits. After falling dramatically in the last recession, profits rose strongly until the middle of 1984. Since then profits have been weak. In the third quarter of 1985 profits before tax in current dollars were 5.6% lower than in the second quarter of 1984. We expect the profits picture to brighten in 1986 as faster growth resumes. That expectation provides one reason for our investment spending forecast for 1986.

We expect **plant and equipment spending** in constant dollars to increase between 3 and 4% in 1986. This represents some acceleration in growth from 1985, and it reflects an improving profits picture and reasonably low interest rates. It also assumes no major tax reforms will be passed that will significantly diminish incentives for business investment spending. A new tax law featuring elimination of the investment tax credit and/or reduction in depreciation allowances would produce a much weaker outlook for plant and equipment spending in 1986.

Residential investment spending is expected to rise 5 to 6% in 1986. This forecast reflects lower interest rates than in previous years; it also reflects the completion of a healthy level of 1985 housing starts. Starts of new housing in 1986 are predicted to rise about 5% from their 1985 level to about 1.85 million units.

Inventory accumulation is also expected to be higher in 1986 than in 1985. The economic slowdown in early 1985 caused firms to keep very lean inventories this year. But with growth picking up at least a little in 1986, firms will add to inventories.

When all these components are combined, investment spending in constant dollars in 1986 is forecast to grow by about 4%. Although hardly a boom, this would be a very good year. □

Monetary and Fiscal Policy Outlook

Lawrence S. Davidson

Associate Professor of Business Economics and Public Policy, Indiana University, Bloomington

Our 1986 national economic forecasts are dependent upon the specific policies of the government and the Federal Reserve System. But the way these policymaking institutions act in 1986 depends very much on economic conditions.

For example, our national economic forecast is based on slower money growth in 1986, whether measured as the yearly percentage change in M1 or M2. This deceleration from the torrid pace of money growth in 1985 depends very much on our forecast of moderate economic growth in 1986.

The deliberations of the Fed, though having minor effects in 1986, may well cause considerable havoc in 1987.

A 3-4% growth rate of real GNP in 1986 will give the Fed some breathing room to restore its credibility as an inflation fighter, particularly important after it let both M1 and M2 grow faster than targeted during most of 1985. If, however, the economy turns down or grows much more slowly in early 1986 than we have forecast, then the Fed may forgo the image upgrade and keep the monetary spigots open wide during the remainder of 1986. This response won't resuscitate the economy in early 1986, but it may stimulate growth later in the year.

Therefore, we think our 1986 economic forecast is compatible with either moderately slower or faster monetary growth. The deliberations of the Fed, though having minor effects in 1986, may well cause considerable havoc in 1987.

Our economic forecasts also assume that, in the areas of tax reform and deficit reduction, Washington is presently barking louder than it will bite. If any tax reform package passes both houses of Congress, either it will come too late to affect the economy in 1986, or it will be so watered down (compared to the original Treasury proposals I and II) that it will have little additional impact on the economy.

Our economic forecasts also assume that, in the areas of tax reform and deficit reduction, Washington is presently barking louder than it will bite.

As far as budget deficit miracles go, we also observe a lot of smoke but expect little fire. Current proposals to restrict Congress's power and to shave the Federal budget deficit will either fail altogether or be applicable to 1987 and beyond. At this writing the fiscal year 1986 appropriations remain unfinished business; there may be some action that will reduce the deficit below the $200 billion mark. Nevertheless, a 1986 budget deficit in the $200-$240 billion range is not likely to affect our forecast greatly. This $40 billion is small compared to a 1986 $4 trillion economy. Furthermore, the budget deficit often turns out to be quite different from the legislated year-ahead projection. Thus, even apparent budget progress today is no strong indication of economic change in 1986. ☐

Net Exports Outlook

Joseph C. Miller

Professor of Marketing, Indiana University, Bloomington

The 1985 controversies over international trade and the value of the dollar will continue into 1986. Since 1976, merchandise imports have exceeded exports, and in 1985 the trade deficit reached an all-time high. The two major concerns underlying the deficit are import competition and loss of export earnings.

With the surge in imports during the first half of 1985, protectionist pressures on the federal government became very strong. On September 22, the United States entered into an agreement with Japan, West Germany, France, and Britain to help defuse the potentially explosive situation and avert a trade war. The agreement set in motion dollar selling operations by the central banks, sales designed to gradually reduce the value of the dollar. If successful, the effect of these actions will be to ease the U.S. trade deficit by eventually stimulating exports and raising the prices of imported goods.

Our forecast is that the dollar will decline by 30-35% of its peak February 1985 value against the Japanese yen and West German mark before leveling out in the second quarter of 1986.

No one is sure, however, how much the dollar needs to be devalued or how long it will take to produce the desired effect on exports and imports. Our forecast is that the dollar will decline by 30-35% of its peak February 1985 value against the Japanese yen and West German mark before leveling out in the second quarter of 1986. Some prices of imported goods will begin to rise after the Christmas shopping season, but the prices of other imports may take longer to adjust.

The 1986 outlook for net exports foresees some improvement in the U.S. trade balance as imports decline and exports begin to rise.

The 1986 outlook for net exports foresees some improvement in the U.S. trade balance as imports decline and exports begin to rise. With a gradual decrease in the value of the dollar, the rise in the prices of imports should not cause serious inflationary pressures. Industries that have been hard hit by import competition will feel some relief as import prices rise. By the second half of 1986, exports will begin to strengthen and thus contribute to overall GNP growth. ☐

Outlook for Interest Rates

William L. Sartoris

Associate Professor of Finance, Indiana University, Bloomington

We are expecting interest rates during 1986 to be much less variable than they have been in the last few years. Although rates may drop somewhat during the first part of 1986, they should increase slightly during the latter part of the year. By the end of 1986, short-term interest rates should be about 50 basis points above their current levels. We expect this increase to be observed in both the money market rates, such as T-Bills, and in commercial bank loan rates. However, because the reduction in the prime rate has lagged behind the fall in money market rates, we might not see the full 50-basis-point increase in the prime rate. We expect less of a change in long-term interest rates than in short-term rates, with the long-term bond rates little changed from their current levels by year-end. Mortgage interest rates are expected to be little changed from current 1985 levels.

Economic Activity

Business credit demand has been slack for much of 1985. As the expansion continues, the business demand for credit will increase. This should put some upward pressure on interest rates. But because the economic expansion is expected to be moderate, this upward pressure on rates should also be moderate.

Federal Deficits

The federal deficit is likely to remain in the same range for 1986 as it has been for the last couple of years. A natural question is, **Why have interest rates declined over the last three years in the face of these extremely high deficits?** (To put the magnitude of the deficits over the last four years in perspective, the total amount of the federal debt has just about doubled, to almost $2 trillion, during the time that Ronald Reagan has been in office.) At least three reasons explain why we have not seen the relationship between interest rates and the deficit that many have expected.

1. The impact of the federal deficit on interest rates depends upon the health of the economy. There has been, and still is, a lot of slack in the economy. Federal deficits would be expected to push interest rates up only when the economy is operating at a high rate of capacity.

2. Because the value of the dollar has been so high, a large number of foreign dollars have been invested in the U.S. This supply of foreign money has helped to keep interest rates below what would have been necessary to finance the deficits domestically.

Adjusting for the inflation rate, today's interest rates are high by historic standards.

3. We should actually be focusing on "real" interest rates instead of "nominal" interest rates. The interest rates that are charged include a premium to cover the expected rate of inflation. To find the real borrowing cost—the cost after accounting for changes in the value of the dollars that will be used to repay the debt—we need to subtract the inflation rate from the nominal interest rate. The result is the "real" interest rate. From the period of the 1950s through the 1970s, we had real interest rates in the range of 1.5% to 3%. With current interest rates on T-Bills of 7.0% to 7.5% and an inflation rate of 3% to 3.5%, the real interest rate is now in the 4% to 4.5% range. What does that mean? It means that, adjusting for the inflation rate, today's interest rates are high by historic standards.

Value of the Dollar

Our outlook calls for a continued slow decline in the value of the dollar, a decline that affects interest rates in several ways. The decline in the value of the dollar makes investment in U.S. securities less attractive for foreign investors. A reduction in the supply of foreign money to be invested in the U.S. will place upward pressure on interest rates. A decline in the value of the dollar also causes imports to be more expensive. If domestic producers match the increase in the price of imports, the rate of inflation will increase. This increase will cause a rise in the level of interest rates, even if the real rate of interest remains the same. Because of the lag in the impact of changing currency values on the prices of imports, much of the decline in the value of the dollar since February 1985 has not yet worked its way through the economy. As these impacts are felt more fully, there will be upward pressure on interest rates.

Foreign Debt

The large amount of foreign debt and the questionable ability of some countries to repay it continue to cause a great deal of uncertainty to hang over the financial markets. Because most of the loans are denominated in dollars and many of the loans are tied to U.S. interest rates, the decline in the value of the dollar and the reduction in rates that is occurring will reduce some of the burden of this debt.

Outlook for the Automotive Sector

Jack R. Wentworth

Dean of the Indiana University School of Business and Professor of Business Administration

The best term to characterize U.S. automobile sales in 1986 would be "softening." This forecast is based on annual sales of 10.2 million for 1986, about 6% less than the 1985 expected sales figure and 3% less than 1984, when 10.5 million cars were sold. These figures depend on the answers to two major questions:

1. To what extent have recent vigorous 1985 sales and healthy and successful incentive programs "stolen" 1986 sales?

2. What will be the domestic/import relationship for 1986 automobile sales?

Automobile manufacturers feared that a transport strike in August and September of 1985 would result in near-record stocks of 1985 models as the 1986 models came onto the market. As a result, a substantial (and, as it turned out, extremely effective) incentive program for most 1985 models was offered. The program, which centered on low interest rates (as low as 7.7%), resulted in a 13-year low in inventories in October. Many feel that the lure of low interest rates caused many potential 1986 buyers to move their purchases ahead to 1985.

Many feel that the lure of low interest rates caused many potential 1986 buyers to move their purchases ahead to 1985.

The second question deals with the mix of automobiles produced domestically with those imported from other parts of the world. In all probability, the number of imports will increase; if that happens, the domestic production decrease will be even greater than the decrease in sales. This scenario assumes that there will be no import restrictive legislation or that such legislation will not take effect until 1987. Any such legislation could have a depressing effect on automobile sales in general.

In all probability, the number of imports will increase; if that happens, the domestic production decrease will be even greater than the decrease in sales.

There is probably no industry that is becoming a world industry faster than the automobile industry. Indeed, it is extremely difficult to identify an "American" car. Which is more American: a Honda built in Ohio using many parts imported from Japan; a Chevrolet Nova (almost identical to the Toyota Corolla) built in California as part of the GM-Toyota joint venture; or a Plymouth Voyager Minivan built in Canada and containing an engine built by Mitsubishi in Japan? Within the next few years, it will get even more confusing. □

Sectoral Changes

Fred Bateman

Chairperson and Professor of Business Economics and Public Policy, Indiana University, Bloomington

The national shift toward increased service employment continues. Currently about 3% of U.S. work force is employed in agriculture, about 21% in manufacturing, and the remainder in non-goods production.

The figure for agriculture has remained roughly constant for several years, although the trend continues downward. The employment share in manufacturing has dropped substantially over the past decade and continues to diminish. Although recovery from the last recession brought many workers back into industrial plants, employment in such heavy manufacturing areas as steel and automobiles is not expected to return to former levels. For competitive reasons, American manufacturers will be forced to adopt new, capital-intensive techniques that will reduce the role of labor. It should be noted, however, that in manufacturing it is employment rather than output that is taking the downward adjustment. Assuming that domestic producers adjust to global market conditions and introduce new technologies, the level of production is not expected to show any precipitous decline in the near future.

Assuming that domestic producers adjust to global market conditions and introduce new technologies, the level of production is not expected to show any precipitous decline in the near future.

Relative to the rest of the nation, Indiana traditionally has had a larger share of its work force employed in manufacturing. That continues to be true today. Currently about 30% of the state's nonagricultural labor force works in manufacturing. Of that 30%, roughly three-quarters work in industries producing durable goods, those that have been most severely buffeted by foreign competition and most subject to increased substitution of capital for labor.

Indiana trends mirror the national ones. That is, manufacturing employment has declined over the past decade, from 36% in 1974 to approximately 30% ten years later. Industrial employment in the state thus remains proportionately well above that of the nation, despite the long-term trend downward over the past several years. It thus remains vulnerable to the forces that encourage capital substitution as the U.S. moves increasingly into the global economy. □

Real Estate Outlook

Jeffrey D. Fisher

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Housing

We forecast a slight increase in housing starts for 1986, which is what most economists, including those at F. W. Dodge and the National Association of Realtors, are saying. In September, the housing affordability index published by the National Association of Realtors was at its best level in more than six years. This level resulted from decreases in the median resale price of *existing* homes (now $75,300) and decreases in mortgage interest rates (12.07% for fixed rate mortgages).

Even with this improvement in home affordability, the median family income ($27,563 per year) is still short of the income necessary to qualify for an 80% loan on the median-priced house. Whether this gap will continue to narrow (as it has in recent months) or start to widen again is difficult to determine. Several sources of uncertainty affect the outlook for housing.

First, the average price of a *new* house rose 5% in September to $103,600. That increase moves the average back toward its record high of $104,700 last April. The price of existing homes could rise again, which would reduce the affordability index unless interest rates keep falling or median incomes rise.

> *The price of existing homes could rise again, which would reduce the affordability index unless interest rates keep falling or median incomes rise.*

Second, the recent proposals for tax reform are a major concern for real estate. In an attempt to produce a more neutral tax system, all the proposals attack real estate to various degrees. For example, the Reagan proposals would lower the top tax bracket to 35%, which would mean less tax on income but would also reduce the value of interest deductions on home mortgages. The proposals would also eliminate the property tax deduction. The National Association of Realtors predicts that, if this kind of tax law were enacted, it would result in a decrease in home values of 10 to 15%. The total decrease nationwide would be $300 billion, which represents 20% of the equity in homes.

Income property also would be affected by the tax proposals, primarily by the lower depreciation tax benefits. This would result in either the value of the property falling or rental rates increasing as investors attempt to earn the same rate of return as they were earning before the tax law change.

A third source of uncertainty is the tighter standards from mortgage lenders based on new regulations from the Federal National Mortgage Association. These regulations are a response to rising default rates on home mortgages. Almost one-quarter of 1% of home mortgages are currently in default. Mortgage balances rise over time with graduated payment and variable rate mortgages. With home values falling in some areas, borrowers who had high loan-to-value ratios have found their equity wiped out. Rather than keep paying on the loan, they are simply walking away. The new regulations are designed to combat this trend.

What can we conclude for housing activity? Forces are acting in both directions, and we are receiving mixed signals. Existing house prices are falling while new house prices are rising. On the average, house prices should barely keep up with inflation. Mortgage interest rates are falling slightly, but further gain is unlikely if our forecast is correct and long-term interest rates remain constant.

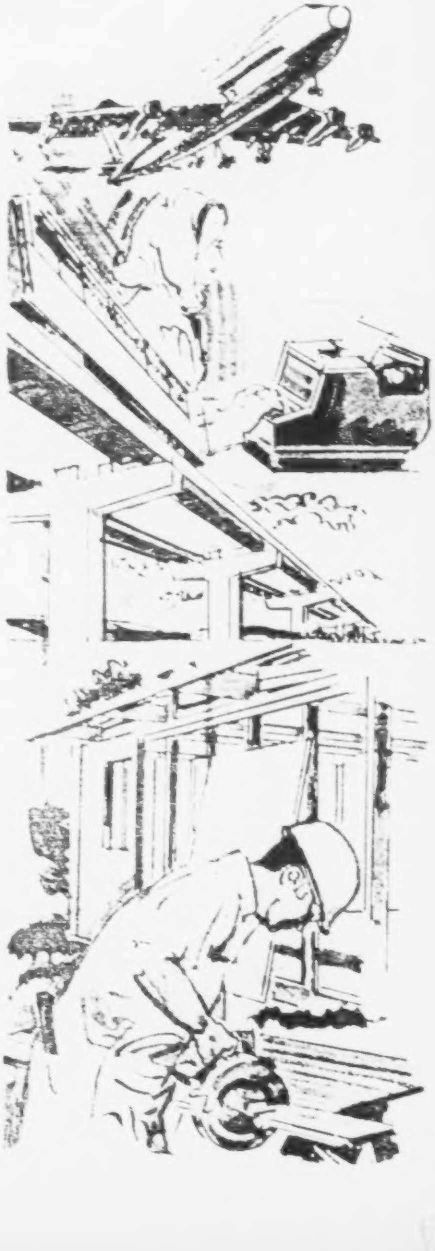
In general, lower inflation rates with lower increases in home prices, variable rate mortgages shifting interest rate risk to borrowers, and threats of tax reform have resulted in housing not being considered the investment it once was. This implies that more people are likely to consider renting as a less costly alternative to home ownership. Basic economic factors—such as demographics, affordability, and the strength of the regional economy—are becoming more important in the demand for housing.

Nonresidential Real Estate

Many economists believe that a current bias in the capital markets is resulting in overinvestment in nonresidential real estate, especially in hotels and office buildings. Consequently, vacancy rates have risen to very high levels. Sources of this bias include the following:

- Foreign investors like U.S. real estate because it seems physically and politically safer than investment elsewhere;
- Pension funds buy real estate to diversify their portfolios, particularly because real estate is thought of as a hedge against inflation;
- Syndicators buy real estate to get the tax benefits;
- Banks have found construction loans more profitable than other investment alternatives; and
- Savings and loan institutions have been willing to make risky real estate loans because federal deposit insurance reduces their risk.

How long can this overinvestment continue? Recent proposals for tax reform would eliminate some of the incentive for real estate investment. Due to high vacancy rates, rents may not be able to rise with future inflation. This could dispel the notion that real estate will continue to be an inflation hedge, which would reduce the demand from such institutional investors as pension funds. In general, the strength of local economies is likely to become *more* important in determining the demand for nonresidential real estate as tax benefits become *less* important and rental rates become *more* important in the investor's rate of return. ☐



Indiana's Economy in 1986: Not Great But Not Bad

Richard L. Pfister

Professor of Applied Urban Economics, Indiana University, Bloomington

We expect real personal income in Indiana to increase a little more than 3% in 1986, a percentage slightly greater than the 1985 increase. We expect establishment employment to grow by about 2% in 1986, less than the 3% increase in 1985.

Although at this writing not all figures are in for the final quarter of 1985, it appears that our forecast for 1985 (see *IBR*, November-December 1984) was a little high for personal income and a little low for establishment employment. Income from agriculture and from interest payments is lower than we had forecast. Employment in trade and services activities grew at a more rapid rate than we had expected.

All the employment growth expected in 1986 will occur in nonmanufacturing activities. As it did in 1985, the growth will occur mainly in trade and service activities. Nonmanufacturing employment is currently about 5% greater than it was in 1979, the peak year for total employment.

All the employment growth expected in 1986 will occur in nonmanufacturing activities.

Manufacturing employment will decline in 1986, though not greatly. Since its peak in 1979, manufacturing employment has declined every year except for 1984. The 1985 figure was 15% lower than it was in 1979. U.S. manufacturing employment has also declined since 1979 but only by about 8%. Indiana and the U.S. have plenty of company in the decline of manufacturing employment. Such declines—and some of them are relatively greater than in the U.S.—have been occurring in all industrialized countries except Japan, which has had a small increase.

Beginning in the first quarter of 1983, Indiana has experienced ten consecutive quarters of recovery. The accompanying **Table** shows the percentage increases for the ten quarters of the current recovery and for the comparable recovery period following the 1974-75 recession. Establishment employment grew by just over 13% in both recoveries. The relative growth in durable manufactures was twice as great in the earlier recovery. More of the employment growth in the current recovery is in trade and service activities, where wages are much lower and where more employment is part-time. As a result, growth in real personal income and in real wages and salaries is much weaker in the current recovery than it was in the 1975-77 recovery.

Comparison of Indiana's Ten Quarters of Recovery

1977:3/1975:1 and 1985:3/1983:1

Variable	*Percentage Change* *1977:3/1975:1*	*1985:3/1983:1*
Real personal income	14.2	10.8
Real wages & salaries	15.0	12.0
Total establishment employ.	13.1	13.2
Nonmanufacturing	14.4	15.5
Manufacturing	11.7	7.6
Durables	11.9	5.9
Nondurables	11.2	12.4

Despite the relatively slow growth expected, 1986 still could be as good as any year since 1978, except for the very strong 1984. ☐

Indianapolis

Robert Kirk

Professor of Economics, Indiana University-Purdue University at Indianapolis, with data assistance from Ron Martin, Indiana Employment Security Division

The forecast for the Indianapolis metropolitan area economy is continued expansion, with a 2.5-3% growth in employment—a moderate expansion at approximately the same rate as 1985.

The leading sectors for the employment increase will be services and retailing, as they were in 1985. Manufacturing, an important sector in terms of wages and salaries, is not expected to be a source of employment growth in 1986.

The words from the song, "Hey, look me over, lend me your ear!" are appropriate for Indianapolis. When you look, you see new buildings; when you listen, you hear the sounds of activity. As a prime example, an estimated $190 million will be put into various construction projects on the IUPUI campus in 1986, including an addition to the Medical Sciences Building, the completion of the addition to Riley Children's Hospital, and the construction of a hotel-conference center and office building complex near the Indiana University Hospital. This construction activity is complemented by projects at other locations in the metropolitan area.

Demand for Office Space

Will all this new space be occupied? There is increasing concern about the downtown vacancy rates. The demand for office space is derived, in part, from employment growth in the services sector. A major contributor to this growth is business services—data processing, business consulting, and public relations, as well as janitorial services and temporary-help agencies. Perhaps this kind of employment should be classified as part of manufacturing because of the complementary relationships between the two. As manufacturing firms have sought to control their costs, they have contracted out business service functions to specialized firms that can take advantage of economies of scale because of the size of the local market. The new information technologies have also contributed to the growth of employment in business services. For several manufacturing firms, Indianapolis has been a branch-plant town with undeveloped business service functions. As Indianapolis has evolved into an important regional center, the business service function has become more important.

Another major component of the services sector is health services. With the opening of the modernized Methodist Hospital and the expansion of Riley Hospital, a period of major hospital expansions will be ending. Although Riley Hospital will be adding up to 400 employees, major acute care hospitals will not be a source of employment growth. With cost control becoming the focus of attention, the health maintenance organizations (HMOs) have taken center stage as dynamic components in the health care delivery system.

Table 1
Housing Production in Selected Metropolitan Areas, 1980-84

Metropolitan area	*Housing permits, 1980-84, per 1,000 households in 1980*	*Multifamily permits, 1980-84 per 1,000 persons, 20-34 years old, in 1980*
INDIANAPOLIS	**67.4**	**49.6**
Columbus OH	70.8	40.1
St. Louis	68.0	38.4
Louisville	68.6	22.8
Cincinnati	50.0	29.2
Chicago	29.8	18.3
Detroit	26.7	15.0

Retailing and Manufacturing

Retailing is an example of a market structure in which there is extensive entry and exit of firms. In April, Borns Management is expected to open the renovated Union Station. With the inclusion of the Holiday Inn, which is a part of the project, about 1,000 jobs will be added to the Indianapolis employment base.

Because retailing occurs in a highly competitive environment, no doubt there will be some closings too.

Manufacturing in 1985 suffered some casualties. Four thousand jobs were lost, with much of the loss occurring in the electrical and nonelectrical machinery industries. The closing of Western Electric was a big factor, but the competitive environment nationally and internationally affected capital goods-producing firms generally. Although some individual manufacturing firms will increase their employment levels, no employment growth is expected from the manufacturing sector as a whole. In fact, if there are no net losses, 1986 will be a significant improvement over 1985.

A noteworthy event in 1985 was a turnaround in the assessed valuation in land and improvements for Center Township. In recent years, the assessed valuation had been decreasing for two reasons: property tax abatement and the removal of properties from the tax base because of demolitions and acquisitions by the city. Because the tax levy depends on the assessed valuation and the property tax rate, a falling assessed valuation places upward pressure on the rate. Thus, the turnaround is noteworthy.

Housing

Relatively speaking, as **Table 1** illustrates, housing construction in Indianapolis has been extensive since 1980. Table 1 shows the number of housing permits issued in the five-year period 1980-84, in relation to thousands of households in 1980 and to thousands of people in the 20-34 age bracket in 1980. To list only the number of permits issued would be to ignore differences in population. A better indicator of the health of the housing industry is permits issued for a constant number of households and for a constant number of people in a given age bracket.

Based on a Spring 1985 survey, the vacancy rate for single-family units was 2-3% and for multifamily units 8-9%, with de-

Table 2
Rankings of Percent Change in Employment for Selected Metropolitan Areas
2nd Quarter 1984-2nd Quarter 1985

Rank	*Total Employment*	*Manufacturing*	*Retailing*	*Finance, Insurance, Real Estate*	*Construction*	*Services*
1.	Columbus OH	Cincinnati	Columbus	Cincinnati	**INDIANAPOLIS**	**INDIANAPOLIS**
2.	Cincinnati	Detroit	Cincinnati	Columbus	Columbus	Columbus
3.	Detroit	St. Louis	Chicago	Detroit	Detroit	Cincinnati
4.	**INDIANAPOLIS**	Columbus	**INDIANAPOLIS**	Chicago	Cincinnati	Chicago
5.	Chicago	Chicago	Detroit	Louisville	Chicago	Detroit
6.	Louisville	Louisville	St. Louis	**INDIANAPOLIS**	Louisville	Louisville
7.	St. Louis	**INDIANAPOLIS**	Louisville	St. Louis	St. Louis	St. Louis

viations from the average based on location within the metropolitan area. These vacancy rates were comparable to those of the recent past.

As with construction in general, it is difficult to determine how much of the 1985 housing activity was motivated by proposed federal tax law changes.

It is anticipated that in 1986, 6,000-7,000 units will be constructed for the eight-county metropolitan area.

Relative Economic Performance

Table 2 is a scorecard of the past year's employment change for Indianapolis compared to some other Midwestern metropolitan areas.

Care must be exercised in interpreting these rankings. They are based on establishment employment rather than residential employment. The employment data will be revised at a later date. For manufacturing, income generated through wages and salaries may be a more important measure.

> *Although some individual manufacturing firms will increase their employment levels, no employment growth is expected from the manufacturing sector as a whole.*

The range of employment change differs among sectors. For example, the range is very small in retailing. The range of change, both positive and negative, is larger in manufacturing. One large firm can make a difference in manufacturing, such as the closing of the Western Electric plant in Indianapolis. The level of sector aggregation may hide changes of different magnitude among subsectors, such as finance, insurance, and real estate.

The past is not necessarily a base from which to forecast the future. Decisions made in distant corporate boardrooms to locate a new plant in Indianapolis—or to close one—are not easily forecast. The rankings show that Indianapolis has been strong in construction and the services, although weak in manufacturing. □

Fort Wayne

Thomas L. Guthrie

Director of Community Research Institute and Associate Professor of Business Administration, Indiana University-Purdue University at Fort Wayne

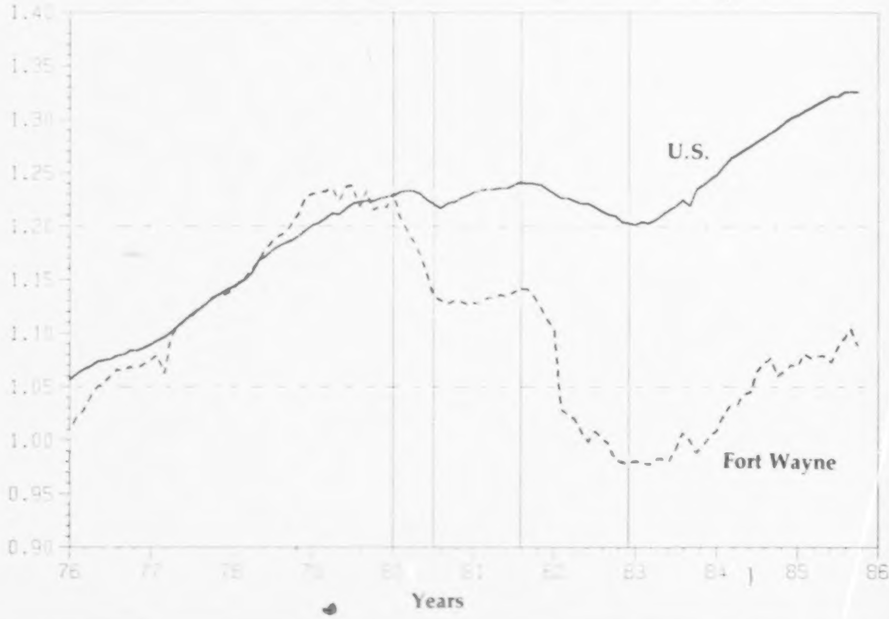
Employment in the Fort Wayne area—Allen, DeKalb, and Wells Counties—is forecast to increase approximately 4% in 1986. The actual job increase would be 6,600, based on preliminary estimates of current (1985 third quarter) nonagricultural payroll employment of approximately 165,000. Half of the employment gain is forecast to result from the continued cyclical expansion of the national economy (see p. 2), and the other half will come from area economic development, especially the start-up of the General Motors light-duty truck-assembly plant scheduled for the fall of 1986.

Realization of the 1986 forecast would mean that all except 3,400 of the approximately 30,000 jobs lost in the four years from 1979 through 1982 had been recouped in the intervening four years. Stated alternatively, for the four years from 1983 through 1986, area employment growth will have increased 20%. Although the area's recovery from the general malaise that has pervaded the Great Lakes states has been remarkable, a formidable task still remains if the area is to come even close to matching the net additions to employment experienced nationally during the same period (See **Figure**).

The 1985 forecast of a 2 to 3% increase in area employment appears to be on the

Total Wage and Salaried Employment, U.S. and Fort Wayne MSA

Index: 1972 Average = 1.00



mark. The actual increase is 2.4%, based on the preliminary estimated 1985 third-quarter employment of 165,000. Third-quarter employment a year ago was 161,100.

As has been the case nationally, area employment growth in 1985 has been concentrated in the nonmanufacturing sectors of the economy. In fact, manufacturing employment decreased nominally. Third-quarter 1985 employment was 46,200; that compares to 46,400 for the third quarter of 1984.

In 1986, the start-up of the new GM plant should increase manufacturing employment by at least 3,000. Given that the GM jobs are relatively high paying, the incremental demand for area services will be even greater than that normally associated with an increase of 3,000 jobs.

Burlington Northern, the second largest air-freight hauler in the nation, will be another new employer in the area in 1986. Freight from 150 cities nationwide is scheduled to be channeled through the hub. Although the planned employment of 300 is modest compared to GM, Burlington has the potential to rival GM in significance. Primarily because of Burlington, major improvements to the airport runways and hangars are under way. Even more significant would be approval of pending applications to establish a port of entry and a "free trade zone." This would open a whole new distribution dimension for the Fort Wayne area.

Burlington Northern, the second largest air-freight hauler in the nation, will be another new employer in the area in 1986.... Although the planned employment of 300 is modest compared to GM, Burlington has the potential to rival GM in significance.

Assuming area employment does increase in 1986 as forecast, questions concerning an adequate supply of labor are likely to arise. The fact that the area has yet to reach its previous cyclical peak in employment does not guarantee a readily available supply of labor. The Bureau of Census estimates that the population of the 13 northeastern Indiana counties decreased almost 4,000 (.6%) between April 1980 and July 1984. Actually, an estimated decrease of 9,500 between 1980 and 1983 was partially offset by an increase of 5,500 between July 1983 and July 1984.

Despite this recent increase in population, the Fort Wayne area unemployment rate has fallen from 10.5% in July 1983 to around 6% currently. Also, area help-wanted advertising continues to climb.

That Burlington Northern was literally swamped with applicants when it interviewed recently would appear to suggest the pool of available labor is still large. But does the available labor pool have the skills needed to fill many of the jobs being created in the area? Other indicators suggest not.

Jeffersonville-New Albany (Louisville Area)

Fay Ross Greckel

Professor of Economics, Indiana University Southeast

The Louisville area economy continued to grow at a moderate rate during the second half of 1985. Some sectors that had been rather weak in 1984 were stronger this year, but a few others turned in a poorer performance this year than in the year before.

Employment

Total employment in the metropolitan area grew steadily, but slowly, in 1985. (The "official" metropolitan area, or MSA, was expanded this year to include seven counties rather than five: Clark, Floyd, and Harrison Counties in Indiana and Jefferson, Oldham, Bullitt, and Shelby Counties in Kentucky.) As **Table 1** shows, total employment in establishments located within the MSA grew by only 8,000 jobs from the first nine months of 1984 to the first nine months of 1985—half as many jobs as were added a year earlier. The slow employment growth means that the MSA is still more than 10,000 jobs below the prerecession employment peak attained in 1979.

Total employment in the metropolitan area grew steadily, but slowly, in 1985.

Manufacturing employment still lags. From 1983 to 1984, about 5,000 jobs in manufacturing industries were added to the local economy. But during the first three quarters of 1985, the manufacturing sector averaged 2,800 fewer jobs than in the same period of 1984, and that does not include the 900-job cutback announced by GE after the end of the third quarter. The job declines were concentrated in durables manufacturing, particularly the metals and machinery industries.

Nonmanufacturing employment was up by nearly 11,000 jobs in the first nine months of 1985 from the same period a year earlier. These job gains occurred throughout the nonmanufacturing sectors and were especially evident in retail trade, services, and government employment. A small fraction of the new service jobs replaced manufacturing sector jobs; some manufacturers decided to contract for services that previously had been provided by their own employees.

The three Indiana counties fared somewhat better than the metropolitan area as a whole. During the first nine months of 1985 there were about 1,300 more jobs in those counties than in the first nine months of 1984—about the same increase as occurred between 1983 and 1984. Job gains were also spread more evenly throughout the economy than in the Kentucky counties. About one-third of the new Indiana jobs were in manufacturing firms. Job growth was sufficient to bring total establishment employment to about 53,000—approximately equal to the previous employment peak, which occurred here in

1981 rather than 1979. Significantly, this previous peak was matched in both the manufacturing and nonmanufacturing sectors.

Unemployment data for the third quarter show a slight improvement over the year-earlier data. The Indiana Employment Security Division estimated that 6,500 residents of Clark, Floyd, and Harrison Counties were unemployed during the third quarter, the same number as in the third quarter of 1984. However, since the three-county labor force has expanded by nearly 6,000 residents, the estimated unemployment rate fell from 7.6% in third-quarter 1984 to 7.1% in third-quarter 1985. For the entire MSA, from third-quarter 1984 to third-quarter 1985 the Kentucky Cabinet for Human Resources estimated a small decline in both the number unemployed (down from 36,900 to 36,400) and the seven-county unemployment rate (down from 7.9% to 7.8%). (None of the above statistics are seasonally adjusted.)

Table 1

Louisville Area Employment and Unemployment in Thousands 1983-1985[1]

	Total Nonfarm Emplmnt.	*Mfg. Emplmnt.*	*Nonmfg. Emplmnt.*	*Number Unemployed*	*Unemplmnt. Rate*
Louisville Metropolitan Area[2]					
Annual averages					
1983	380.0	85.4	295.4	49.1	10.7%
1984	396.7	89.2	307.6	39.7	8.6
Quarterly averages					
1984:1	385.6	89.0	296.6	43.0	9.5
1984:2	396.4	88.8	307.1	40.1	8.7
1984:3	403.4	89.8	313.6	36.9	7.9
1984:4	401.6	89.1	312.5	38.7	8.3
1985:1	394.4	86.9	307.6	39.3	8.7
1985:2	405.2	86.4	318.8	34.4	7.5
1985:3	409.5	86.0	323.5	36.4	7.8
Clark, Floyd, and Harrison Counties					
Annual averages					
1983	49.9	11.7	38.2	8.8	10.5
1984	51.4	13.0	38.4	7.9	9.2
Quarterly averages					
1984:1	49.5	12.6	36.9	10.0	11.7
1984:2	51.9	12.5	38.7	8.4	9.7
1984:3	52.4	13.5	38.9	6.5	7.6
1984:4	52.6	13.4	39.2	6.7	7.8
1985:1	51.3	13.1	38.3	8.8	10.4
1985:2	53.2	13.2	39.0	7.0	7.9
1985:3	52.9	13.0	39.9	6.5	7.1

1. The employment data refer to establishments located within the area cited; the unemployment data refer to residents of the area. Data are not seasonally adjusted.
2. Includes Clark, Floyd, and Harrison Counties in Indiana and Jefferson, Oldham, Bullitt, and Shelby Counties in Kentucky.
Sources: Indiana Employment Security Division; Kentucky Cabinet for Human Resources.

The persistence of both unemployment and of significant pockets of poverty is evident in the record number of individuals qualifying for emergency food aid from Dare-To-Care, which has distribution centers on both sides of the Ohio River. Despite the overall employment gains, emergency food supplies for 60,150 persons were distributed during the first nine months of 1985, a 3% increase over the same period in 1984. (The 60,000 figure includes some repeat aid, possibly accounting for as much as 20% of the total.) The only good news about this statistic is that it represents a marked slowing of the rate of increase in emergency food aid requests.

Construction

Construction activity, which had picked up gradually in 1984, surged ahead in 1985, as can be seen in **Table 2.** In Jefferson County, residential building permits rose 27% in both dollar value and number of units, surpassing the 1979 record. An even greater growth occurred in nonresidential construction, which nearly doubled in value compared with 1984. During the first nine months of 1985 there was an 11% increase in the number of residential units for which building permits were issued in Clark County, and a 40% increase in Floyd County, with the difference attributable to apartment construction in Floyd.

Real Estate

Real estate sales fared less well. During the period from January to September 1985, real estate sales in Jefferson County were about 5% lower in total dollar value and about 10% fewer in number than in the first nine months of 1984. In southern Indiana, real estate sales for the first six months of 1985 were about the same as in 1984. However, preliminary data for the third quarter indicated that a strong sales increase was occurring in those months.

Sales

Automotive sales grew, but at a slower rate than in 1984, as **Table 3** demonstrates.

Table 2

Louisville Area
Residential Building Permits Issued, 1979-1985*

Period Covered	*Jefferson County, Ky.*	*Clark County, Ind.*	*Floyd County Ind.*
1979:Jan.-Sept.	1860	463	316
1982:Jan.-Sept.	670	111	200
1983:Jan.-Sept.	1766	185	259
1984:Jan.-Sept.	1649	193	166
1985:Jan.-Sept.	2102	215	232

*Number of residential units for which building permits were issued, including single-family dwellings, apartment units, and condominium units.

Source: Kentuckiana Regional Planning and Development Agency.

Automobile dealers in Jefferson County sold 4% more new cars and 16% more new light trucks from January to August 1985 than they did in the first eight months of 1984. During the same period, dealers in Clark and Floyd Counties saw new car sales rise by 10%, but their sales of light trucks rose only 4%.

The very limited data available on retail sales indicate that consumer spending remained sluggish during the first three quarters of 1985. According to the Dodge Report, department store sales in the Louisville MSA rose only 1.5% from the same months of the preceding year. Local merchants appeared to be guardedly optimistic about a surge in spending during the holiday season.

The Outlook for 1986

Moderate and uneven growth is likely to continue in the months ahead. Real estate sales appeared to be gaining strength during the third quarter of 1985. After the usual winter lull, growth should persist in 1986 because interest rates are expected to remain at their present levels or to decline slightly.

Residential and nonresidential construction should continue to be strong in 1986, particularly in Jefferson County. Several large projects—mainly office towers and apartments/condominiums—will be underway in downtown Louisville, with other projects under construction in suburban areas. Although there is growing concern about over-building office facilities, the current expansion of downtown office space was accompanied by a decline in the vacancy rate from 16% to 13.6%.

Another cause for optimism is a report from the Louisville Area Chamber of Commerce that commitments from new and expanding industries are running well ahead of last year, both in projected spending on plant and equipment and in number of new jobs to be created.

The picture is not entirely rosy. There is greater vulnerability in many sectors than in previous expansion periods. Problem areas include agriculture and related industries; exporting and import-competing businesses; firms in various industries that are hanging on, but rather precariously; and businesses that are having trouble adjusting to a world in which virtually stable prices make it difficult to pass on cost increases. Some retailing and service industries, including restaurants, are still seeing the effects of the slow recovery, the loss of high-paying manufacturing jobs, and the other weaknesses noted above.

Table 3

Louisville Area New Car and Light Truck Sales, 1983-85

Period Covered	*Jefferson County, Ky*		*Clark and Floyd Counties, Ind.*	
	Number of Vehicles	*% Change*	*Number of Vehicles*	*% Change*
1983:Jan.-Aug.	22,058	—	4,019	—
1984:Jan.-Aug.	25,951	+ 17.6%	5,615	+ 39.7%
1985:Jan.-Aug.	27,638	+ 6.5%	6,088	+ 8.4%

Source: Greater Louisville Automobile Dealers Association.

Nevertheless, for the time being, the strengths appear to outweigh the weaknesses. Employment should increase as much—and perhaps a little more—in 1986 as in 1985, bringing the total number of jobs in the MSA close to the prerecession peak. Unemployment will continue to decline, and the economy as a whole will experience moderate growth, as it did in this past year. □

Terre Haute

Marvin Fischbaum

Professor of Economics, Indiana State University

A year ago the economic outlook for Terre Haute appeared to be troubled and uncertain. With the national economy decelerating, this area showed signs of stalling out. Manufacturing jobs lost between 1979 and 1982 simply had not been replaced. Much of the remaining manufacturing base depended on a depressed agricultural sector, and employment growth in locally dependent service sectors appeared to be limited. Indeed, the last quarter of 1984 saw employment decline by more than the seasonal norm, and by January 1985 area employment had fallen to its lowest level since February 1983.

If the numbers are to be trusted, area employment has advanced remarkably since the beginning of the year. Estimated employment for the old four-county SMSA peaked at 78,185 in June 1979. By August 1982 it had fallen to 65,690, and as late as January 1985 it stood at 69,700. The preliminary estimate for September, however, is a robust 78,520. The 13% increase in jobs over the first three quarters of 1985 substantially exceeded the rate of job loss for any similar period of the 1979-1982 recession. By September, the unadjusted unemployment rate, both for Vigo County and the Terre Haute MSA, had fallen to 6.1%. Even the seasonally adjusted rate of 6.8% stood below state and national averages.

But Terre Haute does not present the atmosphere of a city riding the wave of prosperity. The uncertainties of a year ago have not been resolved, and new developments have, on balance, tended toward the negative. Plans to tear down the old Meis Department Store and build offices for the water company fell victim to the cost of removing asbestos from the old structure. Schultz, the last of the downtown department stores, is closing its doors. Terre Haute Malleable, once a major employer of a skilled work force, fell victim to weakness in farm equipment manufacturing and to foreign competition. In Brazil, the Glen Gery Brick Company, a remnant of an industry once synonymous with Clay County, is nearing the end of the line.

But Terre Haute does not present the atmosphere of a city riding the wave of prosperity. The uncertainties of a year ago have not been resolved, and new developments have, on balance, tended toward the negative.

Perhaps the most significant development of 1985 resulted from the takeover battle at CBS that led to a stock buyback and a desire to generate cash rather than invest. Demand for compact audio discs has been growing more rapidly than almost anyone envisioned, which strained the CBS-Sony partnership in DADCO. Sony, wishing to redouble the capacity of the only digital audio disc facility in the U.S., bought out the CBS interest. At the same time, Sony shelved plans to construct a separate plant for digital video discs. In the short run, disc production will increase more rapidly without a CBS veto on expansion, but the long-run potential of the local facility would have been greater with the continued participation of the largest producer of audio records and tapes.

Generally, business conditions in 1985 appeared to be fairly good, if not as ebullient as employment data would indicate. An informal survey of retailers suggests sales growth modestly in excess of inflation.

Generally, business conditions in 1985 appeared to be fairly good, if not as ebullient as employment data would indicate. An informal survey of retailers suggests sales growth modestly in excess of inflation. A similar survey of manufacturers suggests a large volume of orders and an improvement in the number of hours worked, though not in the number of workers employed. For 1986 these manufacturers anticipate increased spending on capital equipment, but again, no increase in employment.

Construction activity increased in 1985, but unemployment in the construction trades remained exceedingly high. F. W. Dodge estimates that the first eight months of 1985 brought a 10% increase in the value of residential construction contracts and a 35% increase in nonresidential contracts. On a cumulative twelve-month basis, the value of building permits in Vigo County remained steady for residential construction, while nonresidential permits multiplied on a very small base. In 1985, the focus of residential construction shifted from homes to apartments. Real estate activity picked up in 1985, but home prices were stable, and with declining interest rates, ownership costs fell.

For 1986, a further pickup in construction activity is likely. Nonresidential projects announced but not yet started include buildings at Indiana State University and Rose Hulman, at least one downtown office building, and a couple of strip shopping centers. Residential construction includes three separate proposals for middle-income housing for the elderly and possibly one new nursing home.

Terre Haute has been suffering from an astonishing case of Toyota fever. Local media have encouraged citizen participation in an effort to land the choicest prize in the Japanese auto plant lottery. This follows a flap in which the city berated the state for omitting Terre Haute from its list of potential sites, and the state berated the city for airing its differences publicly and for not coordinating efforts with the state. The city claims that the state does not treat Terre Haute fairly, while the state claims that Terre Haute hurts the chances of other Indiana sites by pursuing an independent course. Both are probably right.

Terre Haute enjoyed substantial employment gains in 1985, but nothing developed to repair the declining export base. Long-term questions regarding the economic health of the region remain, and for 1986 the local economy must overcome obstacles simply to remain even. ☐

South Bend-Elkhart

John E. Peck

Professor of Economics, Indiana University at South Bend

The midyear outlook for the South Bend and Elkhart areas (*IBR*, May-June 1985) suggested that economic conditions over the remainder of 1985 should be relatively flat. In light of the decidedly sluggish performance of the national economy—particularly in manufacturing—and the absence of either positive or negative shocks locally, the local record appears to match the earlier forecast. However, it can be argued that some progress has been made locally and that the present sluggishness is not a prelude to an imminent downturn.

The **Table** summarizes various indicators of local economic activity for the South Bend/Mishawaka and Elkhart/Goshen communities as tracked by Indiana University at South Bend's Bureau of Business and Economic Research. The figures contained in the table are seasonally adjusted and, with the exception of the unemployment rates and real estate data, are index numbers expressed as a percentage of 1967 base year values. In each table, comparative index numbers are given for July and August 1985. To highlight trends, index numbers are also given for an August 1985 to August 1984 comparison.

South Bend

Looking at the short-term South Bend-Mishawaka performance, we see that:

- Employment was up fractionally;
- The unemployment rate was down by seven-tenths of a percentage point, due almost entirely to a late summer post-vacation recall of workers in the transportation equipment sector;
- Industrial energy sales and truck purchases were down; and
- Housing permits and passenger car sales were up.

Selected Economic Indicators for South Bend/Mishawaka and Elkhart/Goshen
(Seasonally Adjusted Indexes: 1967 = 100)

	South Bend/Mishawaka					*Elkhart/Goshen*				
				% Change from					*% Change from*	
	August 1985	*July 1985*	*August 1984*	*July 1985*	*August 1984*	*August 1985*	*July 1985*	*August 1984*	*July 1985*	*August 1984*
Employment data										
Establishment employment										
Nonag. employ.	116.9	116.7	114.9	.2%	1.7%	170.7	168.9	168.9	1.1%	1.1%
Mfg. employ.	77.7	77.6	78.4	.1%	- .9%	156.9	154.7	158.1	1.4%	- .8%
Nonmfg. employ.	139.3	138.9	135.6	.3%	2.7%	306.5	304.7	297.0	.6%	3.2%
Unemployment rate	6.4	7.1	6.3	n/app	n/app	5.9	6.6	6.0	n/app	n/app
Help wanted advertising	98.8	104.9	81.5	- 5.8%	21.2%	—	—	—	—	—
Utilities										
Industrial electricity sales	154.6	154.7	135.7	- .1%	13.9%	199.8	200.7	192.3	- .4%	3.9%
Commercial gas sales	134.6	66.6	144.8	102.1%	- 7.0%	161.2	180.9	157.3	-10.9%	2.5%
Industrial gas sales	56.9	67.0	77.3	-15.1%	-26.4%	233.9	242.6	285.5	- 3.6%	-18.1%
Retail car & truck sales										
New passenger car sales	95.9	92.6	95.0	3.6%	.9%	—	—	—	—	—
New truck sales	237.5	306.3	193.4	-22.5%	22.8%	—	—	—	—	—
Housing construction data*										
Est. value of permits	469.4	378.1	289.5	24.1%	62.1%	311.9	455.4	216.2	-31.5%	44.3%
No. of permits issued	116.3	98.7	76.9	17.8%	51.2%	102.2	169.7	72.7	-39.8%	40.6%
Av. value per permit	440.4	415.1	403.9	6.1%	9.0%	324.2	281.8	321.0	15.0%	1.0%
Residential real estate data**										
No. of active listings	1754	1672	1533	4.9%	14.4%	1288	1283	1361	.4%	- 5.4%
Closed sales:										
Av. days listed	59	53	87	11.3%	-32.2%	101	95	112	6.3%	- 9.8%
Av. market price	$50,258	$49,256	$48,276	2.0%	4.1%	$49,269	$48,890	$48,631	.8%	1.3%
% of sale to list price	94.0	94.0	94.0	.0%	.0%	95.0	103.0	95.0	- 7.8%	.0%

* All Elkhart construction data has a base year of 1970.
** Real estate data are not index numbers but are unadjusted weekly averages.
Sources and definitions of data are available on request.

The 12-month comparison suggests that the August 1985 performance was, in many ways, a continuation of a longer-term pattern. The year-to-year unemployment rates and car sales indexes were virtually unchanged. A 2.7% increase in nonmanufacturing employment was offset by a .9% decline in manufacturing employment. Despite this reduction in manufacturing employment, 2,500 more persons are employed in manufacturing in the South Bend-Mishawaka MSA than in August 1983, when the economy still labored under the burden of recession.

The most impressive performance seems to be in housing. Permits issued were up 51.2% on the year-to-year comparison, and the average days listed for residential real estate had declined by one-third.

Elkhart

Conditions in the Elkhart-Goshen MSA were equally flat whether viewed from the short-term or longer-term perspective. On the August 1984 to August 1985 comparison, employment indicators were up on moderate increases in durable goods manufacturing and retail trade. All energy sales indicators were down.

Although housing permits issued declined 39.8%, they remained at a level that reflects very acceptable activity over the summer of 1985. The number of active real estate listings remained virtually constant, and the average number of days that residential properties were listed rose 6.3%.

The Elkhart-Goshen community was one of the first in the state to recover from the 1982-83 recession. Prerecession employment levels had been recovered by late summer 1983. More remarkably, the economy continued its surge of growth in the months to follow, adding nearly 12,000 new jobs through August 1985. A comparison of August 1984 and August 1985 indicators reveals that the intensity of this growth moderated over the past year.

Employment overall was up a modest 1.1%, yet the total number of persons employed in the county reached historic highs (90,000+) by June 1985. The other indicator certainly worth mentioning with respect to its year-to-year performance is the number of building permits issued, which in August 1985 was up 40.6% from August 1984. The summer months of 1985 were particularly good in this regard for the Elkhart-Goshen MSA.

> *Employment levels should continue to rise through 1986 at a 1-2% rate, with some additional improvement in the Elkhart community in the last half of the year.*

Most forecasters see the coming year as one of moderate growth, with the nation's GNP increasing by 3 to 4% after adjustment for price changes. Such a scenario—without unexpected local shocks—suggests a continuation in the local economies of the modest improvements that we have realized over the past 12 months. Accordingly, it is expected that employment levels should continue to rise through 1986 at a 1-2% rate, with some additional improvement in the Elkhart community in the last half of the year. □

Kokomo

Dilip Pendse

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Kokomo's economy registered a sharp and vigorous growth during the first nine months of 1985, thanks to a healthy boost in the auto sector, low interest rates, low inflation, and a low jobless rate. The economy that was in utter distress three years ago is now healthy, more diversified, and poised for another year of solid growth. Not only are more people working now than any time in the past 10 years, but people are also more optimistic about the future than in the recent past.

Employment

On the average, 43,122 people per month were in Kokomo's labor force during the first three quarters of 1985, the highest number in the past 10 years and up 8% from the same period in 1984. The swelling of the labor force is a strong indication that people are migrating to Kokomo for jobs and that those who were discouraged in the past are reentering the labor force. Of course, people wouldn't come to Kokomo if jobs were hard to find.

During the first nine months of 1985, on the average, 39,933 people per month held jobs in the area, the highest monthly average in the past 10 years, and up 2,433 from the same period a year ago. The average monthly unemployment rate during January-September 1985 stood at 7.4%, down from 7.6% during the same period in 1984. The dramatic turnaround on the employment front can be attributed to such factors as a healthy economy, higher factory recalls, and creation of new jobs.

Incomes

Because more people are working, the average per capita and per household incomes have risen sharply in Kokomo. According to the Bureau of Labor Statistics, in 1984 the average annual pay per worker in Kokomo was $22,861, the highest in the state and the fifth highest in the nation. Since 1982, Kokomo has moved up 32 places in the Bureau of Labor's national rankings. The average annual pay per worker is expected to rise to $24,461 in 1985.

And there's more good news. For the second consecutive year Kokomo has moved up sharply in the *Sales and Marketing Management*'s ranking of metropolitan areas. For example, 1984's median household effective buying income in Kokomo ($28,789) was ranked the highest in the state and eightieth in the nation. Since 1982 Kokomo has moved up 97 places at the national level and five places at the state level. Kokomo's national ranking has registered the most rapid and sharpest improvement among the eleven metropolitan areas in the state. For the year 1985, the median household effective buying income should rise to $33,107.

Not only are more people working now than any time in the past 10 years, but people are also more optimistic about the future than in the recent past.

Capital Expenditure

Another bright spot, along with lower jobless rates and higher incomes, are plans to expand and modernize existing operations. Capital expenditure plans totalling nearly $1 billion have been announced by GM, Chrysler, Tau Lab, Kokomo Sanitary Pottery, and Indiana Bell, to name just a few.

General Motors alone plans to spend $575 million to enlarge and refurbish its Marion metal stamping plant, which employs 3,700 people. Similarly, Chrysler Corporation is to expand and renovate Kokomo's casting and transmission plants at a cost of $375 million.

These and many other major capital expenditure plans will mean not only greater security for existing jobs but also more jobs in the future. They also will make the area more attractive to other industries.

Housing

Another sector that performed exceptionally well during the first nine months of 1985 is the housing sector. It blossomed in Kokomo, registering significant gains in almost all categories.

The number of houses sold during the first nine months of 1985 was 22% higher than a year ago. The number of building permits issued for various projects jumped 20%, thanks to a resurgence in single-family home and office/business construction. One hundred twenty-one single-family home construction permits were issued from January to September of 1985, up a whopping 83% from a year ago. The building permits issued for office/business construction/renovation registered a hefty 40% gain during the first nine months of 1985.

Retail Sales

Kokomo's retail businesses have benefited from healthy economic conditions. A year ago, Kokomo's retail businesses rang up total sales of $586.7 million. This year, the volume of retail business is expected to rise to $674.1 million. Sales have been especially strong at general merchandise stores, auto dealers, eating and drinking establishments, and furniture and appliance stores.

The Outlook for 1986

Kokomo's economy, largely influenced by trends in the durable goods sector of the national economy, should continue to do well in 1986, though not with the same vigor registered in 1985. Some uncertainty, of course, exists in this forecast because of yet unknown ramifications of the recent filing of bankruptcy papers (the second time in the past five years) by Continental Steel Corporation, Kokomo's fourth largest employer, and Cabot Corporation's decision to sell its operations in Kokomo.

The local economy will not generate enough jobs to keep unemployment from rising. On the average, 200-300 fewer people per month will be working next year, with monthly unemployment rates ranging between 7% and 11%. No massive layoffs are expected in the auto sector, and the odds are heavily against unemployment rates rising to the teens.

Consumer spending will continue next year at a cautious pace, helping the retail trade to rise to $755 million. Sales of durable goods, however, will slow down. The backlog of demand for new automobiles has eased quite a bit, and auto sales will decline next year.

The prospects for the housing sector look good, although not necessarily great. Nearly 50% of housing sales in 1986 will be financed through conventional loans, thanks to the prospects of steady or slightly lower interest rates next year.

In a nutshell, in Kokomo the recovery will keep rolling for one more year. There is absolutely no threat of recession, despite the expected decline in auto sales in Detroit next year. □

Gary-Hammond-East Chicago (Calumet Area)

Leslie P. Singer

Professor and Coordinator of Economics, Indiana University Northwest

In Northwest Indiana the recession in manufacturing and steel has not yet terminated. Unfortunately, the region has longer and steeper downturns than the rest of the nation (see **box**). Unlike other parts of the country, steel employment and employment in other local manufacturing tend to rise or decline in tandem. There is no countercyclical or compensating industry.

Average annual employment declined in local steel plants from 66,100 in 1970 to 38,200 in September of 1985. Simultaneously, employment in local manufacturing plants, excluding the steel mills, declined from 41,700 in 1970 to 21,900 in September of 1985.

There are few regions in the country where almost no businesses increase employment or expand when the principal industries decline.

A great deal depends on steel. However, steel employment need not rise for Northwest Indiana to prosper. **All that is necessary for growth in this region is for steel and manufacturing employment to stop going down.**

From 1970 to 1979, when Northwest Indiana registered its greatest gain in total employment, rising from 224,000 jobs in 1970 to 268,000 jobs in 1979, manufacturing employment actually declined, from an annual average of 107,800 jobs in 1970 to 103,800 in 1979. Steel employment was almost steady, increasing by a small fraction, from 66,100 in 1970 to 66,600 in 1979.

The Northwest Indiana economy was

Table 1

Northwest Indiana Wages and Salaried Employment (Adjusted Quarterly Rates in Thousands of Employees)

	Actual				*Projected*			
	1985/1Q	*1985/2Q*	*1985/3Q*	*1985/4Q*	*1986/1Q*	*1986/2Q*	*1986/3Q*	*1986/4Q*
Manufacturing employment	60.8	61.1	60.2	59.9	61.1	62.0	61.9	61.7
Steel employment	39.2	38.9	38.3	37.2	38.4	37.8	37.6	36.8
Other steel-related manufacuring	19.0	19.7	19.4	20.1	20.5	21.1	21.5	22.5
Nonmanufacuring employment	150.8	152.8	154.3	155.4	152.2	153.4	154.9	159.9
Industrial nonmanufacturing (const., util., transport)	22.7	22.5	23.1	23.6	23.7	23.8	23.7	23.9
Services and trade (incl. retail, wholesale, fin., health)	97.4	99.0	99.6	102.6	99.5	101.3	101.5	106.9
Public sector (incl. government, education)	29.7	28.3	30.0	29.2	29.0	28.2	29.6	29.1
Total employment	**210.8**	**212.9**	**213.1**	**215.3**	**213.4**	**215.3**	**216.8**	**221.6**
Private nonmanufacturing employment (excluding public sector)	121.1	124.5	125.3	126.2	123.2	125.1	125.2	130.8

Note: Numbers may not add to totals because of rounding.

fueled by the manufacturing and steel payroll, not by employment. Employment in businesses other than manufacturing, in services, finance, banking, building, and in trade, advanced from 115,400 in 1970 to 167,000 in 1979.

When employment in manufacturing declined from 103,800 in 1979 to 90,700 in 1981, employment in the remainder of the regional economy also declined: from 164,000 in 1979 to 158,600 in 1981.

The drop in regional employment other than in manufacturing was much smaller than the decline in manufacturing and in steel. The proportionate decline in payrolls and in nonwage income (pensions, supplemental benefits) was much smaller than the decline in employment. From 1984 to 1985 manufacturing employment declined from 66,500 to 60,400. The payroll, however, increased from $1.8638 billion to $1.8712 billion.

For growth to resume, all we need is for employment in steel to stabilize.

If steel employment does not decline much below 38,000 full-time equivalent jobs—that is, the number of persons whom the steel companies would employ if each employee worked a standard 40-hour week—then total employment in Northwest Indiana gradually will begin to rise.

Once growth resumes, the chances of attracting new firms will be greatly enhanced. Much of the new business expansion in the next three to four years will be in the eastern part of the three-county region (Lake, Porter, and LaPorte).

Three years ago I predicted that the steel industry would stabilize between 38,000 and 40,000 full-time equivalent employees. In September of 1985, 38,200 steel employees worked an average of 42.5 hours per week.

Table 2

Northwest Indiana Actual and Projected Payrolls (in Billions of Current Dollars: Annual Rates)

	Actual Payrolls		*Projected Payrolls*					*Annual Percentage Change*
	1985/2Q	*1985/3Q*	*1985/4Q*	*1986/1Q*	*1986/2Q*	*1986/3Q*	*1986/4Q*	
Manufacturing	1.771	1.799	1.803	1.917	1.931	1.929	1.923	6.66%
Steel	1.181	1.211	1.243	1.284	1.264	1.255	1.228	1.41%
Nonmanufacturing	2.422	2.397	2.436	2.285	2.310	2.350	2.442	1.88%
Serv. and trade (incl. health care)	1.254	1.262	1.229	1.192	1.214	1.217	1.282	1.59%
Total mfg. and nonmfg.	**4.193**	**4.196**	**4.239**	**4.202**	**4.241**	**4.269**	**4.365**	**4.03%**

This represents 40,580 full-time equivalent jobs. Although I do not expect any growth in steel in 1986, 38,000 to 40,000 employees is still a valid long-range forecast.

The steel companies will continue to weed out product lines that cannot compete with imports. Steel companies will concentrate on large clients, such as auto and defense, who are not likely to switch to foreign producers.

An expanding industry of steel intermediaries, such as service centers and finishing mills, will continue to buy steel from a variety of sources. Some steel will be purchased from large rolling mills, such as those located in northern Indiana, some from mini-mills, and some from foreign producers. The full-line steel company, with its numerous specialized bureaucracies serving thousands of customers, is a creature of the past. Local steel plants already have surrendered many markets to foreign producers and to mini-mills. Without steel imports, the U.S. economy can no longer satisfy its needs.

If the U.S. economy in 1986 grows at a rate exceeding 3%, local manufacturing employment will stabilize as indicated in **Table 1.** On the other hand, if the U.S. growth rate falls much below 3% or does not exceed 2%, Northwest Indiana steel employment will continue to decline and may fall to 37,000 full-time equivalent jobs by the end of 1986 or early 1987.

At low national growth rates, several more product lines will be discarded and further reductions in white-collar employees and production workers will be necessary as local steel companies continue to suffer losses.

The possibility of a steel strike cannot be completely discounted. To be successful in their current streamlining efforts, local mills must get concessions on work rules.

To be effective in preserving or adding steel jobs, wage concessions would have to be so large as to be unattainable. All this must be clear to the steel companies as well as to the steel unions. Consequently, a long strike would be irrational.

As Table 1 shows, there has been almost no growth in private nonmanufacturing jobs. Moreover, insufficient future growth is predicted. The local economy, therefore, will be unable to absorb the growing pool of untrained labor in the urban areas, causing ever-increasing pressures on the public poor relief and welfare sector.

Some growth is expected in exports of labor, mostly female, to the Chicago metropolitan districts and the collar counties. As more people eat out, restaurants, fast foods, and other services will expand.

The bureaucracies in what might be termed the "poverty industry" will continue to expand in 1986. This will cause government employment to rise slightly, in spite of anticipated cutbacks in other public service employment.

Too Badly Hurt to Laugh

Abraham Lincoln once was asked how he felt about an election. "Somewhat like the boy in Kentucky, who stubbed his toe while running to see his sweetheart," Lincoln replied. "The boy said he was too big to cry, and far too badly hurt to laugh."

Northwest Indiana is like that boy. And even when everyone is hurting a little, Northwest Indiana seems to hurt worse.

Total civilian employment for the U.S. as a whole was compared to total civilian employment for the Northwest Indiana Metropolitan Statistical Area. The comparison was made for four business cycles, from December 1979 to November 1982.

The results showed that economic conditions go downhill faster in Northwest Indiana than in the rest of the nation—and they take longer to go uphill. The Northwest Indiana economy turns *down* an average of 4.16 months before the national economy goes down and turns *up* an average of 11.7 months after the national economy goes up.

When times were good nationally, Northwest Indiana did slightly better. Compare the average percentage gain in employment from trough to peak:

U.S.	+ 7.645%
N.W. Indiana	+ 10.308%

But when times were bad nationally, Northwest Indiana did even worse. Compare the average percentage loss of employment from peak to trough:

U.S.	- 1.532%
N.W. Indiana	- 12.017%

Richmond

Ashton I. Veramallay

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The Richmond area economy can expect modest growth in 1986 as the national economic expansion continues. Growth in local gross domestic product will be influenced by business conditions at the national level, particularly in the transportation-related and service industries. A significant part of the local economy is intricately tied to these industries, and a slowdown can have adverse effects on business activities in Wayne County.

Some local firms are already experiencing the effects of current economic conditions on their employment, output, and sales. Of the respondents to an October survey, 12% felt the effects very severely; 16.5%, severely; 50.5% moderately; and 15%, slightly. Only 6% were unaffected. If this trend continues in the coming year, coupled with plant closings, layoffs, and discouraged workers, unemployment is likely to register in the 7% to 9% range.

Consequently, earlier gains in employment will be eroded.

This trend, however, is reversible if Richmond, through its current aggressive marketing strategies, is successful in attracting new businesses. An overwhelming majority of the survey respondents (96%) favor foreign investments/firms coming into Wayne County. Furthermore, three-fourths of the respondents think that the county has the right climate to attract foreign enterprises, and 86% are in favor of free trade among nations rather than protectionist trade policies that distort resource allocation and efficiency.

The catering, hotel, recreational and retail businesses will benefit considerably from the multimillion-dollar activities generated by the convention and tourism bureau.

On a brighter note, the service sector, especially the convention and tourism bureau, may play a key role in invigorating the local economy. The catering, hotel, recreational, and retail businesses will benefit considerably from the multimillion-dollar activities generated by the convention and tourism bureau. City leaders may also find it worthwhile to develop an attractive package by economically integrating Richmond, Centerville, Cambridge City, Connersville, Brookville, Metamora, and Indianapolis for tourist dollars. There are potential economies of scale to be realized from such a package.The Indianapolis 500 and Hoosier Dome demonstrate the need for this type of venture, which eventually can be a vehicle for local diversification, employment, growth, and stability.

Business confidence is still strong. About 76% of the respondents are optimistic about business conditions in 1986, and 74% believe that Wayne County has benefited from Reaganomics. Despite this optimism, respondents have a deep concern regarding the gargantuan federal budget deficit and its potential impact on the national economy. Wayne County, given its interdependence with the national economy, is not immune to this impact.

Consumer confidence is still high. Real personal income is on the rise because of lower inflation. This augurs well for a strong fourth quarter for the retail sector as consumers buy big-ticket items during the holiday season. If present trends continue, consumers may carry the spending hangover into early 1986 since no recession is anticipated at that time.

Overall, I predict a strong fourth quarter and modest growth in the local economy during 1986. Accelerated growth is possible if existing operations expand and if businesses that create jobs locate in the Wayne County area. □

Evansville

Maurice Tsai

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In 1985 the Evansville economy grew at 3% in real output, 1% less than earlier projected. Slow national growth in the first half was reflected in the local economy. In the second half of 1985, the local economy should gain slightly as the national economy becomes more active.

Throughout 1985, the regional economy showed a moderate growth in most sectors except in industrial production and finance. Strong activity in construction and transportation should continue into 1986 and beyond. The regional employment has improved significantly from the bottom level of 1983.

In the coming year, the regional economy is projected to advance at a modest rate similar to 1985. The Evansville Area Business Index should grow from 1985's 109.05 to a 111.00 level in 1986, a 2% growth on the input basis (see **Table**). When the labor productivity growth of 1 to 2% is added, the real output and income should grow by 3 to 4%. All sectors, including industrial production and finance, will grow at similar rates.

Strong sectors again will be construction and transportation. Lowered interest rates and high-geared public construction (Division Street Project) will contribute to the strength of this sector. Various improvements in highways and streets and the airport expansion project currently under way will stimulate air and land transportation activities. A revived manufacturing sector also will supplement more transportation activities.

Retail and wholesale activities will pick up in 1986 as personal incomes rise. Automobile sales may lose some strength due to saturation of the market and to imports replacing domestic cars. The service industries in general will remain active. However, as in the past few years, the health care sector may have to endure adjustment caused by overcapacities and reduced public health assistance. Still, the Trade and Services Index is expected to rise by 1.8% compared to 1985's 2.4%.

The industrial production sector will grow in 1986 after its decline in 1985. The shutdowns of factories and layoffs of workers are over. Production for inventory buildup and consumer durables will advance as personal incomes rise and the housing picture improves. The Industrial Production Index will increase by an estimated 2%.

1986 will be another year of moderate growth for the Evansville economy. In terms of real output, the growth rate will be 3%. All sectors will show some growth, and the local unemployment rate may drop to 7%.

The finance sector will grow again this year as general economic conditions improve and local major banks expand by merging with nearby county banks. Increases in business and consumer demands for funds are other positive factors.

Airport expansion, downtown and riverside projects, and great improvements in the highway and street systems will provide a better business environment in the future.

Employment conditions will continue to improve in 1986. However, because local employment increased in 1984 and 1985, there may be less room for improvement in 1986. The new operation of a Zayre Corporation unit should boost local employment, but it will be partially offset by layoffs at the Zenith plant. The local unemployment rate has declined steadily from 1983's 10.2% and 1984's 8.4% to 1985's 8.1%. The 1986 rate is estimated to be 7.6% and may drop to 7% by the end of 1986.

In summary, 1986 will be another year of moderate growth for the Evansville economy. In terms of real output, the growth rate will be 3%. All sectors will show some growth, and the local unemployment rate may drop to 7%.

The local economy is looking forward to still higher growth rates in the years to come. Recent efforts in building and improving the local infrastructure are the basis for such an optimistic forecast. Airport expansion, downtown and riverside projects, and great improvements in the highway and street systems will provide a better business environment in the future. What the region needs are:

- Improved markets for medical services;
- Some high-tech industry; and
- Perhaps an improved image of management-labor relations.

The region should attract more basic industries that produce goods and services exportable to other regions and abroad. □

Evansville Area Business Index
(1972 = 100)

Period	*Industrial Production*	*Trade & Services*	*Construction*	*Transportation*	*Finance*	*Employment*	*Composite Index*
Quarterly Index							
1983/3Q	109.34	106.48	107.14	91.27	104.91	101.74	105.96
1983/4Q	115.02	105.60	98.46	92.73	106.52	103.89	107.27
1984/1Q	120.00	106.05	104.58	95.18	105.03	103.23	109.63
1984/2Q	114.52	104.70	108.09	94.11	106.40	102.07	107.47
1984/3Q	111.17	106.12	100.73	95.15	106.56	103.70	106.34
1984/4Q	114.27	107.18	101.24	95.69	106.65	106.04	108.21
1985/1Q	117.41	109.63	104.69	100.12	103.43	106.16	110.63
1985/2Q	112.18	109.27	103.92	98.43	103.97	105.40	108.45
1985/3Q	109.84	106.74	113.07	99.34	105.26	107.10	107.92
Annual Index							
1981	108.83	102.28	107.63	98.94	97.75	105.57	105.01
1982	104.52	102.36	103.62	93.23	102.40	102.85	102.64
1983	108.14	104.10	116.09	91.36	104.60	100.71	105.41
1984	114.99	106.01	103.66	95.03	106.16	103.76	107.95
1985 (est.)	113.40	108.54	107.92	99.35	104.29	106.67	109.05
1986 (proj.)	116.00	110.50	115.00	103.00	107.00	107.50	111.00

Source: Maurice Tsai, School of Business, University of Evansville.

Lafayette

William C. Dunkelberg, *Associate Professor of Economics, Purdue University*
Jeff Van Hulle, *Graduate Student in Economics, Purdue University*
Dorothy Mansfield, *Labor Market Analyst, Indiana Employment Security Division*

This outlook is sponsored by the Greater Lafayette Chamber of Commerce. The results are based on 49 questionnaires returned in 1985 and 59 returned in 1984 from a random sample of 100 firms in the Greater Lafayette area. The sample was drawn from the membership of the Chamber of Commerce. Without their cooperation, this study would not be possible. All data are strictly confidential and all respondents are anonymous. The authors express their appreciation to the firms that participated in the survey.

Overall, 1985 was an excellent year for the Greater Lafayette area. As anticipated in the November 1984 Greater Lafayette Area Economic survey sponsored by the Chamber of Commerce, the economy flourished. Employment gains have been substantial, pushing total employment to a new high. Sales gains and profits have been healthy, and businesses expect this prosperity to continue into the new year.

Employment

1985 saw total employment eclipse the record set in 1979, the peak of the last business upswing. Total employment in September of this year stood at 61,500 compared to 60,300 at the last cyclical peak (see **Table 1**).

Even construction employment has responded to the force of the recovery after languishing for years while the recovery sped on. Losses in manufacturing and construction employment from 1979 levels have

Figure 1

Unemployment in Tippecanoe County 1979-1985
(in Thousands of Persons)

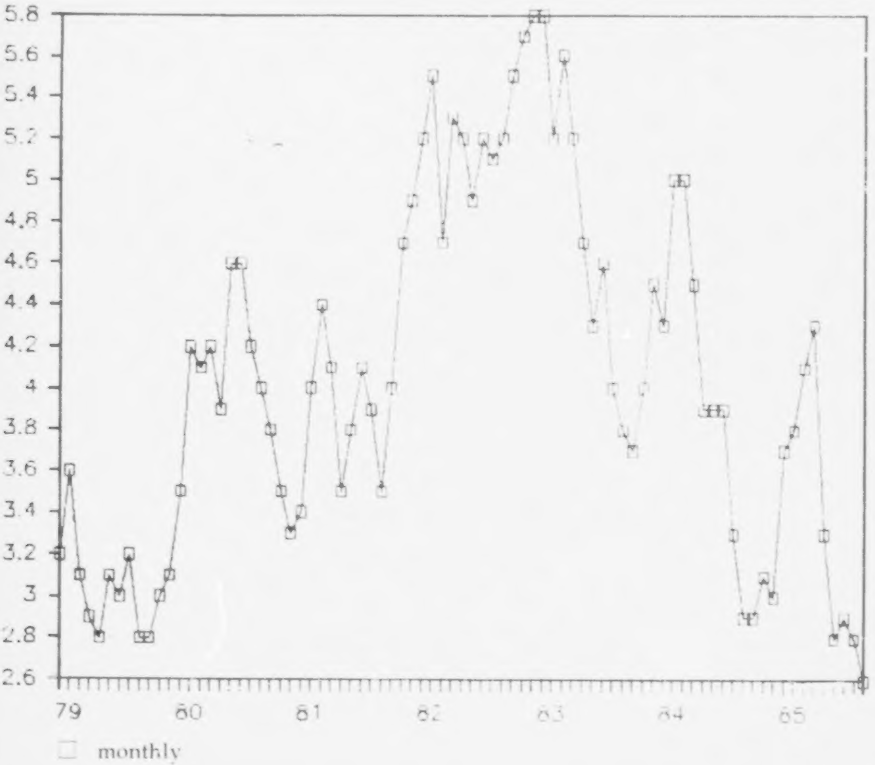

Table 1
Greater Lafayette Employment Trends

Industry	*Peak 1979*	*Jan. 1983*	*Jan. 1984*	*Jan. 85*	*Sept. 85*
Manufacturing	12,900	9,900	10,800	11,300	11,200
Construction	2,700	1,400	1,200	1,400	1,800
Transportation	1,600	1,700	1,700	1,800	1,800
Whlse/Retail	12,000	11,300	11,800	12,100	12,700
Services	9,200	9,100	9,400	10,100	10,400
Government	2,600	2,200	2,300	2,300	2,500
Education	17,600	17,500	17,600	17,300	18,200
Other	1,700	2,500	2,500	2,800	2,900
TOTAL	**60,300**	**55,600**	**57,300**	**59,100**	**61,500**

Table 2
Sales Distributions of Respondent Firms

Sales	*Respondents*	
	#	*Pct.*
Under $200,000	10	21%
$200,000—$800,000	10	21
$800,000—1,500,000	8	16
$1,500,000 or more	19	39
No answer	2	3
Respondents	**49**	**100%**

> *Total employment in September of this year stood at 61,500 compared to 60,300 at the last cyclical peak.*

been made up for by gains in service, education, and retail trade employment (see **Figure 1**).

Sales

Forty-nine firms responded to the November survey, down 10 from last year but sufficient to provide a picture of the outlook for 1986. The sales distributions of these firms are shown in **Table 2.** Firms of all sizes are represented.

More firms reported improvements in sales volumes this year than last, although average increases were larger on average in 1984 (18% vs. 14% in 1985) (see **Table 3**). However, far fewer firms expect increases in their real sales volumes for 1986. Only 57% expect an improvement in real sales averaging 16%. Last year, 70% expected gains averaging 17% in real sales. Still, no firm expects any major reversals in sales, suggesting that few firms expect the economy to move into a recession.

Profits

Fewer firms reported profit improvement in 1985 as well, but the profit picture still appeared to be good for two-thirds of the firms (see **Table 4**). Thirty-seven percent reported lower earnings, up from 14% in 1984.

Table 3
Lafayette Sales, 1984 and 1985

	Sales Volume		Avg. Pct Change		Real Sales Expectations		Avg. Pct. Change Expected	
	1984	1985	1984	1985	1984	1985	1984	1985
Higher	54%	59%	18%	14%	70%	57%	17%	16%
Lower	18%	18%	9%	8%	5%	0%	37%	—
Same	28%	23%	—	—	25%	43%	—	—

Table 4
Profits in 1984 and 1985

	1984	1985
Higher	46%	31%
Lower	14%	37%
Same	36%	32%

Increasing Employment

Plans to increase employment are more frequent today than a year ago, with 50% planning to increase employment compared to 41% a year ago (see **Table 5**). However, the average planned increase in 1984 was 16 employees, compared to 8 employees for 1986.

Planned Capital Outlays

In 1984, 59% of firms planned to make some type of capital outlay during 1985. At this point in the expansion, capital spending plans are even more frequent, even though the recovery is now three years old and there is rising uncertainty about the future course of sales and demand. Sixty-five percent plan capital outlays, with the primary focus shifting even more in favor of equipment and vehicles (see **Table 6**). The lack of activity in "new structures", an indicator of additions of big blocks of new capacity, is typical of the national expansion.

Table 5
Employment Plans of Lafayette Firms

# of Employees		12-Month Employment Plans	1984	1985	Average Change in # of Employees 1984	Average Change in # of Employees 1985
Under 10	41%	Increase	41%	50%	16	8
10-49	20%	Keep the same	48%	46%	—	—
50-199	10%	Decrease	11%	4%	44	15
200 or more	29%					
	100%					

Table 6
Planned Capital Outlays for Lafayette Firms

			Type of Outlay	1984	1985
Yes	65%	→	New structures	18%	12%
No	25%		Expansion/improve	20%	20%
Uncertain	10%		Equipment	41%	53%
			Other	5%	10%
	100%				

Table 7
Most Important Problems of Lafayette Firms

Problem	1984	1985
Weak sales; demand	14%	16%
Labor costs	16	2
Availability of skilled labor	2	6
Interest rates, credit availability	21	8
Inflation; rising costs	5	4
Regulation; red tape	11	16
Taxes	4	10
Competition	23	24
Foreign competition	2	2
Other	2	12
	100%	100%

Most Important Problems

The major concern of local firms remained "competition"—a legitimate concern of any viable enterprise (see **Table 7**). In spite of this concern, reports of profitability remained good. Fading in importance were interest rates and financing problems and labor costs. Replacing these were taxes and government regulation, factors that should not be dissipating the energy and strength of our firms. Meaningless regulatory compliance is like a tax, diverting the use of valuable resources.

Overall, the outlook appears quite positive for 1987. Though it lacks some of the exuberance of 1984, it is spread more evenly in the area economy. Employment should continue to grow if firms realize the real sales gains that are anticipated. □

Anderson-Muncie

Robert R. Jost

Professor of Economics, Ball State University

This analyst attaches a 60% probability to the realization of the Indiana University 1986 forecast for a 3 to 4% growth in real GNP.

As we commence the fourth year of recovery, given uncertainties regarding the budget and trade deficit, exchange rates, an atypically low personal saving rate, and possible tax changes, the risks are greater on the downside of the forecast. Thus, I would assign a 30% probability to the prospect of GNP increasing less than 3%, and only a 10% probability to its exceeding 4%. Growth of less than 3% is much more likely if we focus on this region, this state, and particularly the Anderson-Muncie area.

Growth of less than 3% is much more likely if we focus on this region, this state, and particularly the Anderson-Muncie area.

Even after three years of national economic recovery, employment gains in the Great Lakes states have not offset the flood of job losses associated with the 1979-82 debacle. Although employment in these states is less than what it was in mid-1979, the nation's payroll employment is 9% higher for the comparable period. Obviously, employment in the particular mix of industries located in these Great Lakes states—motor vehicles, steel, farm machinery, and agriculture—has not shared proportionately in the general prosperity of the nation.

What these states have experienced in general applies to the Anderson and Muncie MSAs, *but with far greater severity.*

Employment

Let us first focus on the historical record of establishment employment. From a peak in November 1978, Anderson's establishment employment went downward, troughing in February 1982 at an annual rate of -9.4%. Establishment employment in the Muncie MSA peaked in October of 1979, and declined at an annual rate of -6.7% through August of 1982.

To minimize seasonal variation, let us compare both MSAs for the November 1978 to November 1982 period. During that time establishment employment declined at an annual rate of -6.5% for Anderson and -3.9% for Muncie. If the economic recovery is included in the data by using a November 1978 to November 1984 time frame, establishment employment still declined at an annual rate of -2.5% for Anderson and -1% for Muncie. Anderson's relatively greater severity of incidence is dramatized by noting that its establishment employment averaged 3,500 more than Muncie's during the 1977-78 period but just equalled that of Muncie as of September 1985. Keep in mind that establishment employment in Anderson as of September 1985 was still 11% below its November 1978 peak, and Muncie was 9% below its October 1979 high.

Demographics

Recent demographic data substantiate the conclusion that these two counties have suffered rapid hemorrhaging of their economic bases. From April 1, 1980, to July 1, 1984, the populations of the Anderson and Muncie MSAs declined an estimated 3.7 and 3.9% respectively, whereas Indiana's population count remained unchanged.

Projected population trends for the Anderson and Muncie MSAs are much less traumatic, but they strongly reinforce the conclusion that these areas have serious economic adjustments ahead. A study by the Bureau of Economic Analysis of the U.S. Department of Commerce projects average annual rates of population decline for the Anderson and Muncie MSAs at -.2% and -.3% respectively for the 1983-2000 time frame. Bear in mind that, of the 330 MSAs in the U.S., the Department of Commerce projected that only 33 would carry a minus sign. No other MSA in Indiana comes anywhere near matching the annual rates of decline projected for Anderson and Muncie. Indeed, these negative rates are only a few places removed from the worst in the nation. However, the reader is cautioned to regard the Muncie projection with a jaundiced eye; population projections for MSAs possessing relatively large university populations are frequently wide of the mark.

Income

If one looks at personal income, another gloomy picture is revealed. Nominal personal income in Indiana grew at an annual rate of 7.69% in the seven-year 1978-84 period. This rate was the second lowest growth rate among the Great Lakes states, which in turn grew substantially below the national average of 9.77%. Nominal personal income data for 1984 are not yet available for Madison and Delaware Counties, but for the six-year 1978-83 time frame, they grew at annual rates of 5.4 and 5.8%, as opposed to 6.89% for Indiana.

Thus, historical trends in establishment employment, demographics, and personal income all tend to reinforce the somber appraisal that Anderson and Muncie have indeed experienced some very hard times.

Historical trends in establishment employment, demographics, and personal income all tend to reinforce the somber appraisal that Anderson and Muncie have indeed experienced some very hard times.

Strong auto sales during the third quarter of 1985 have helped to sustain local area employment gains. But these buoyant sales were subsidized by lower-than-market rates of interest, and they do not appear to have carried over into the fourth quarter. Aggregate auto sales are expected to decline to 9.7 million units in 1986, but import market penetration is expected to rise to more than 30% of total sales. Given the long lags involved, relief for the manufacturing sector from the declining dollar probably will not substantially mitigate deterioration in the trade sector until late in 1986, if then.

1986 Outlook

In short, declining auto sales in 1986, an increasing market share captured by imports, and the uncertain lags associated with varying exchange rates are factors that do not bode well for the local economies in 1986.

Declining auto sales in 1986, an increasing market share captured by imports, and the uncertain lags associated with varying exchange rates are factors that do not bode well for the local economies in 1986.

Anderson. Looking beyond 1986, the continued diminution of employment in Anderson's GM plants seems quite probable, given the growing intensity of foreign competition and the exceptionally high wages paid by the domestic industry. True, the current construction of the Magnaquench plant (see *IBR*, May-June 1985) constitutes a tribute to the combined efforts of management, labor, and government to slow this diminution, but its future impact on employment is uncertain until more is known of the operational efficiency of this technological breakthrough in the products market. It is also true that some of Anderson's older GM plants are probably too labor-intensive to compete in price and quality in world markets. To the extent that GM retools these plants, jobs still will be reduced in the short run. Employment losses in Anderson's GM plants may very well exceed 300 jobs annually between 1986 and 1990.

Employment losses in Anderson's GM plants may very well exceed 300 jobs annually between 1986 and 1990.

Muncie. The outlook for Muncie's much smaller durable goods manufacturing sector is also far from rosy. Warner Gear, Muncie's largest industrial employer, announced that it was shipping its marine and industrial manufacturing unit to South Wales—a net loss of 300 jobs. Current contracts and orders suggest substantially larger layoffs in this Borg Warner plant in the near future. Ontario Corporation has cut back operations to one shift in response to the actions of Pratt & Whitney, the aircraft engine producer, which contracted with foreign suppliers for work previously performed by Ontario. Employment at the Westinghouse transformer plant remains near an all-time low. The manufacturing sector is not likely to provide much job growth in Anderson or Muncie in 1986.

The Service Sector. The Indiana University forecast assumes employment gains in Indiana will be centered largely in the nonmanufacturing sector—to wit, the service sector broadly defined. Indiana's service sector represents 55% of total employment as compared to 64% for the nation.

Location quotients for the Anderson and Muncie MSAs are not available, but those for Indiana indicate a disproportionate part of the state's labor force is engaged in manufacturing and farming compared to the norm for the nation. Indiana's 1979-82 change in service employment registered -2.3% as opposed to a +3.5% gain for the nation.[1] Here it would appear there is room for growth.

Given Anderson's disproportionately high concentration on durable goods production—37% of its establishment employment—one would expect growth in the supporting service sector. Although Anderson has made some sizable gains in retail outlets and restaurants in recent years, establishment employment numbers show anemic growth in this sector. Anderson's close proximity to Indianapolis enables the capital city to siphon off much of Anderson's potential service employment. Not only do many residents of Anderson shop in readily accessible Indianapolis malls, but a significant number of them also work in Indianapolis and its environs.

Muncie's much more diversified economy is quilted with small firms. Durable goods production constitutes only 24% of its establishment employment. Muncie is geographically further removed from Indianapolis and is surrounded by relatively rural counties that provide a market for the export of services—a role in which Ball State University is a major factor.

The relatively optimistic Indiana University forecast for Indiana probably will not be matched by the Muncie economy, but Muncie should weather 1986 more successfully than Anderson. ☐

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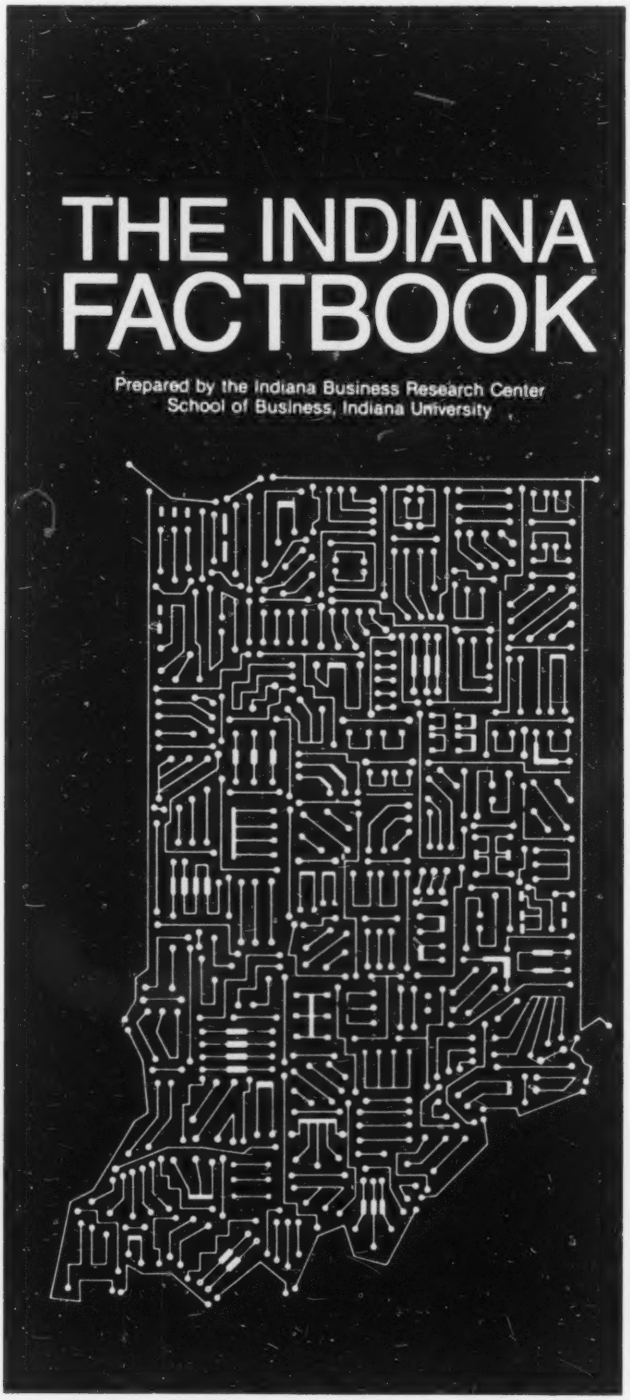
[1] Keil and Mack, *Development of the Service Sector in Indiana*, Office of Economic Analysis, State of Indiana Department of Commerce, 1985: 1.



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Some Regional Forecasts

Indianapolis

Although some individual manufacturing firms will increase their employment levels, no employment growth is expected from the manufacturing sector as a whole. In fact, if there are no net losses, 1986 will be a significant improvement over 1985.

Louisville Area

Employment should increase as much—and perhaps a little more—in 1986 as in 1985, bringing the total number of jobs in the MSA close to the prerecession peak.

Calumet Area

Much of the new business expansion in the next three to four years will be in the eastern part of the three-county region (Lake, Porter, and LaPorte).

Kokomo

Kokomo's economy, largely influenced by trends in the durable goods sector of the national economy, should continue to do well in 1986, though not with the same vigor registered in 1985.

South Bend-Elkhart

Some progress has been made locally and the present sluggishness is not a prelude to an imminent downturn.

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Robert Kirk

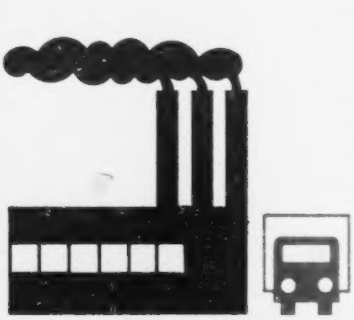
The Troubled Waters of the Great Lakes Region: Profitability and Indiana Manufacturing, 1963-1977

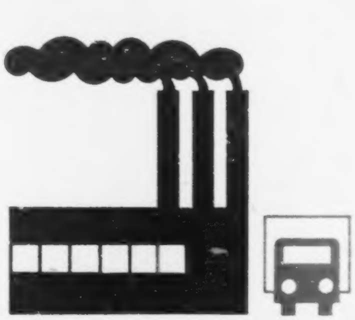
Wayne Bartholomew,
Paul A. Joray, and
Paul Kochanowski

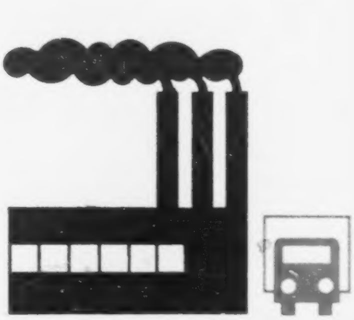
The Decline of Manufacturing in the Midwest: A Short-Run or Long-Run Problem?

David L. Lantz

Aiming for Growth in Indiana's Manufacturing Sector: A Targeted Industry Approach







The Troubled Waters of the Great Lakes Region: Profitability and Indiana Manufacturing, 1963-1977

In this issue . . .

Where do we stand and where are we going? These questions continue to be of great interest to Indiana business. The central concern is profitability. Professor Robert Kirk of IUPUI tackles that most difficult issue for the manufacturing sector. The measurement and conceptual problems, as well as the diversity of the industries involved, create special headaches.

No easier is the task attempted by Bartholomew, Joray, and Kochanowski from I. U. South Bend as they explore the Midwestern economy and its problems.

What businesses should Indiana try to attract? David Lantz enters that jungle and offers his insights for our collective consideration.

Although none of these studies is conclusive, each is a valiant attempt to answer some basic questions that need to be addressed. It is to be hoped that these articles will stimulate further inquiry into what is needed to help Indiana business prosper.

M.J.M.

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Robert Kirk

The author is a professor of economics at Indiana University-Purdue University at Indianapolis.

Rivalry among states for investment in new plants has become intense. Alternative state economic development strategies have been designed to attract new firms. Business writers have written many lines analyzing (or speculating) why Company XYZ chose Centerville over Tranquility. In Principles of Economics I, firms are assumed to seek maximum profits. This assumption leads to implications for the determination of the profit-maximizing level of output. While the time dimension is given explicit attention (short-run vs. long-run decision rules, for example), the spatial dimension is given less. However, in the political arena the location of and shifts in economic activity affect ballot-box outcomes and the levels of state and local revenues—and, therefore, services provided.

Why is the period of this analysis, 1963-1977, important to us in 1986? The period begins during a business expansion and ends during another one. It covers two recessions, 1969-1970 and 1973-1975. Thus, the period covers more than a business cycle and allows us to examine longer-term trends in the economy. By focusing on trends rather than a cycle, we reduce the role of aggregate demand fluctuations and give greater attention to changes in the costs of production and profitability in Indiana relative to the national economy. Finally, since the period started before the oil price increases of the 1970s, we are able to make observations about changes in interstate and interregional profitability before the relative change in the price of oil.

Profit is revenue minus costs. Since costs vary over space, profitability varies spatially too. How has the profitability of Indiana's manufacturing sector compared to the U.S. manufacturing sector? This question is addressed by reference to estimates of gross state product, a data source recently developed by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce.[1]

Table 1 shows the average annual rate of growth in real gross state product for the U.S., regions, and states within the Great Lakes region for 1963-1977, the BEA estimation period.

Noticeable regional differences appear. The Southwest is 81 index points higher than the Mideast. Within the Great Lakes region, with the exception of Wisconsin, there is little differentiation. Indiana's rate is 80% of the U.S. rate.

Table 1 is for gross state product—across all industries. But what is the rate of growth in gross state product in manufacturing only? **Table 2,** like Table 1, shows the average annual rate of growth in real gross state product, but for only the manufacturing sector.

The ranking by region follows the pattern in Table 1 with the exception of the Plains area, which is below the U.S. in Table 1 but moves above the U.S., as well as above the Rocky Mountain and Far West regions, in Table 2. The range (from highest to lowest) of the index in Table 2 is greater than in Table 1. This greater range suggests that manufacturing is more spatially differentiated than all-industry gross state product. Greater differentiation is exhibited by the Great Lakes states in Table 2 than in Table 1; the range is from 113 in Wisconsin to 36 in Illinois. Indiana's rate in manufacturing is 86% of the U.S. rate, compared to 80% for all industries.

> *Indiana's rate in manufacturing is 86% of the U.S. rate, compared to 80% for all industries.*

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[1] U.S. Department of Commerce, Bureau of Economic Analysis, *Experimental Estimates of Gross State Product by Industry*, BEA Staff Paper 42 (May 1985). In a recent issue of the *IBR*, Janet L. Fedde compared BEA estimates for Indiana with those produced by the Indiana Business Research Center and showed that the estimates were comparable. See "Indiana's Gross State Product," *Indiana Business Review*, September/October 1985: 14-20.

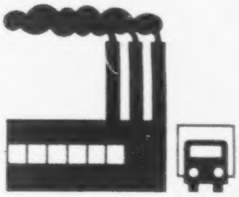

Table 1
Average Annual Rates of Growth in Real Gross State Product for the U.S., Regions, and Great Lakes States, 1963-1977

Region	*Average Annual Growth Rate*	*Index (U.S. = 100)*		*Highest or Lowest States in Region*
Southwest	5.45	150	*High*	Arizona 164, Texas 156
Southeast	4.75	131		Florida 163
Rocky Mountain	4.49	124		Colorado 143
Far West	3.98	110		Nevada 156
U.S.	**3.63**	**100**		
Plains	3.49	96	*Low*	South Dakota 79
Great Lakes	2.92	80		
Illinois	2.85	78		
INDIANA	**2.91**	**80**		
Michigan	2.90	80		
Ohio	2.82	78		
Wisconsin	3.42	94		
New England	2.88	80		Rhode Island 71, Mass. 73
Mideast	2.51	69		New York 55, Penn. 72

How might we interpret the differential rates of growth at the regional level? On the demand side, there has been a population shift from the North and East to the South and West.

The population shift to the West has had three components:

1. A higher rate of natural increase;
2. A favored destination for immigration from abroad; and
3. A favored destination for migrants from other U.S. regions.

In the South, Texas and Florida have gained population for the same three factors.

The decline in agglomeration economies has reduced the dominance of the traditional manufacturing belt.

On the supply (production) side, some analysts suggest that the shift in manufacturing, especially to the South, has been due to a decline in agglomeration economies—that is, economies that arise from firms locating close to each other to take advantage of shared services (for example, makers of women's high-fashion garments locating close to a sewing machine repair shop in lower Manhattan, or book publishers locating in New York City to take advantage of a pool of copy editors).[2] The decline in agglomeration economies has reduced the dominance of the traditional manufacturing belt.

Reasons suggested for the decline in agglomeration economies include technological changes in the areas of

- Production;
- Transportation; and
- Communication.

These changes favor nonmetropolitan areas.[3]

Specifically, newer production technologies require large tracts of land and low labor skills. As the production process becomes routinized, firms locate plants in nonmetropolitan areas, frequently in the South. Development of the interstate highways system and the preference for truck transportation made nonmetropolitan areas accessible. Use of telephone lines and computer networks to communicate processing and distribution information made urban locations unnecessary.

These demand and supply-side factors should have implications for the rate of profitability in different regions. Regions with growing population and relatively lower costs would be expected to have higher rates of profitability. What do the gross state product estimates for manufacturing suggest about profitability?

A Measure of Profitability

How is profitability of the manufacturing sector measured? It is derived from the estimates of gross state product. Because BEA's estimates are on a "where-produced basis," they are useful in making interstate comparisons.

The gross state product can be estimated by two methods. One is the sum-

Table 2
Average Annual Rates of Growth in Real Gross State Product in Manufacturing for the U.S., Regions, and Great Lakes States, 1963-1977

Region	*Average Annual Growth Rate*	*Index (U.S. = 100)*
Southwest	5.90	227
Southeast	4.16	160
Plains	3.66	141
Rocky Mountain	3.59	138
Far West	2.68	103
U.S.	**2.60**	**100**
Great Lakes	2.19	84
Illinois	0.94	36
INDIANA	**2.24**	**86**
Michigan	2.03	78
Ohio	2.17	84
Wisconsin	2.94	113
New England	1.76	68
Mideast	0.90	35

[2] See Gerald A. Carlino, "Declining City Productivity and the Growth of Rural Regions: A Test of Alternative Explanations," *Journal of Urban Economics*, July 1985: 11-27; and Ronald L. Moomaw, "Firm Location and City Size: Reduced Productivity Advantages as a Factor in the Decline of Manufacturing in Urban Areas," *Journal of Urban Economics*, January 1985: 73-89.

[3] Daniel Garnick and Vernon Renshaw, "Competing Hypotheses on the Outlook for Cities and Regions: What the Data Reveal and Conceal," *Papers of the Regional Science Association*, 45 (1980): 105-24.

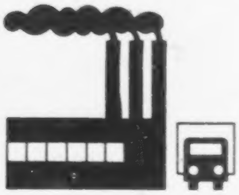

Table 3
Profit Rate in Manufacturing, 1963 and 1977, U.S., Great Lakes Region and Great Lakes States

Economy	*1963*	*1977*	*Change in Index Points, 1963-77*
U.S.	100	100	
Great Lakes	110	91	-19
Illinois	98	95	- 3
INDIANA	**115**	**95**	**-20**
Michigan	127	74	-53
Ohio	104	95	- 9
Wisconsin	105	111	6

mation of factor and nonfactor *charges* incurred in producing at market prices by labor and property located in the state. In national income terminology, it is the earnings approach to GNP obtained by summing wage and salary earnings, rent, interest, indirect taxes, depreciation, and profits. The other approach is to sum the *values added* in production by each economic unit.

The estimation procedure begins with business receipts and subtracts the costs of intermediate goods to obtain gross state product by industry. This is a *value-added* approach. To make estimates of profitability, the procedure shifts to charges—an *earnings* approach. Given data for wage and salary earnings and indirect business taxes, BEA estimates "other charges" incurred in production as a residual: other charges equal gross state product less wage and salary earnings and indirect business taxes.[4] The "other charges" may be viewed as a measure of corporate profitability (proprietors' income is a component of wage and salary earnings).

Because corporate profits cannot be separated reliably from other components of "other charges" (such as rent and interest), care must be exercised in interpreting the measure. For example, it is possible for an industry in a given state to have a high capital-to-labor ratio, which would imply a high proportion of "other charges" in depreciation and, therefore, a low profitability.

Indiana Profitability, 1963-1977

What has been Indiana's track record? To answer the question requires comparing Indiana with the U.S. The measure is the share of gross Indiana product in manufacturing accounted for by "other charges" (OC/GSP) relative to the share of gross national product in manufacturing accounted for by "other charges" (OC/GNP).

Table 3 compares Indiana manufacturing with the U.S. and with other Great Lakes states; the U.S. rate is the norm for comparison (equal to 100).

If the index is greater than 100, then the state has a higher profit rate than the U.S. Conversely, an index less than 100 means the state has a lower rate than the U.S.

In 1963 only Illinois had an index value less than 100; the other Great Lakes states had profit rates greater than the U.S. However, in 1977 only Wisconsin remained above 100. In fact, over the time period Wisconsin increased relative to the U.S. The increase in relative profitability is consistent with Wisconsin's experience in rate of growth in manufacturing gross state product, as shown in Table 2. In Table 3, Indiana's experience mirrored the Great Lakes region; both lost about the same number of index points.

The manufacturing sector consists of a variety of industries. Part of the differential performance reflects the different compositions of industries in each state's manufacturing sector. BEA made estimates of gross state product at the two-digit industry level. How did an Indiana industry compare to the same industry at the national level?

Table 4 provides profit rates for selected Indiana manufacturing industries relative to the U.S. The industries' gross state product represents about 80% of the total manufacturing gross state product in 1977.

In 1963, all of the durable goods industries except transportation equipment were above 100, suggesting that Indiana was a higher profit location relative to the industry nationally. However, over time in each durable goods industry the relative position of Indiana declined except for transportation equipment, which moved upward, toward the U.S. level. For nondurable goods, Indiana moved from a position below the U.S. to one above it. Food and chemicals, the two most important

Table 4
Profit Rate in Selected Manufacturing Industries, 1963, 1967, 1972, and 1977, U.S. and Indiana (Index: US. = 100)

Industry	*1963*	*1967*	*1972*	*1977*	*Change in Index Points, 1963-77*
U.S.	100	100	100	100	
Indiana manufacturing	115	109	102	95	-20
Durable goods	122	114	100	94	-28
Primary metal	129	109	96	47	-82
Fabricated metal	128	98	106	126	- 2
Nonelectrical machinery	130	98	94	105	-25
Electrical machinery	150	127	118	120	-30
Transportation equipment	74	76	69	85	11
Nondurable goods	94	99	106	109	15
Food	86	95	112	119	33
Chemicals	115	124	128	122	7

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[4] Earnings consist of the following: compensation to employees (including wages and salaries); supplements to wages and salaries (such as employer contributions to pension funds and social security); and proprietors' income. Indirect business taxes consist of tax liabilities chargeable to business expense but typically passed on to consumers (such as general sales tax, excise tax, licenses, and fees).

nondurables in terms of gross state product in Indiana, influenced the nondurables performance.

Care must be taken in interpreting these results because the composition of an industry (even at the SIC two-digit level) differs among states. For example, in transportation equipment Indiana is essentially an auto *parts* manufacturing state while Michigan is both an auto *assembly* and *parts* manufacturing state.

Earnings and Profitability

How might the differential performance across industries in Table 4 be interpreted? Some relevant factors already have been discussed. The demand factor involving population shifts, which was analyzed at the regional level, would be expected to affect all industries in the region. The supply (production) factors affect industries differentially. Technological change occurs that is industry-specific.

Profitability was measured by "other charges," a figure which, in turn, was the result of subtracting wage and salary earnings from gross state product by industry. A relative labor earnings rate was computed in the same way that the relative profit rate was determined: the share of gross state product in the specific industry accounted for by wage and salary earnings (EARN/GSP) relative to the share of gross national product in the same industry accounted for by wage and salary earnings (EARN/GNP).

Food and chemicals, the two most important nondurables in terms of gross state product in Indiana, influenced the nondurables performance.

Table 5 shows the labor earnings rates for selected Indiana manufacturing industries relative to the U.S. It is important to remember that these numbers compare Indiana to the U.S. in the same industry. They do not compare the earnings rate in a given industry to an all-industry rate.

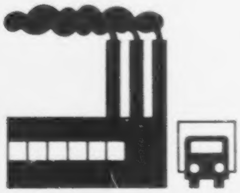
Profitability is related in an accounting sense primarily to two variables—gross state

Table 5
Earnings Rate in Selected Manufacturing Industries, 1963 and 1977, U.S. and Indiana

Industry	*1963*	*1977*	*Change in Index Points, 1963-77*
	(Index: U.S. = 100)		
U.S.	100	100	
Indiana manufacturing	94	103	9
Durable goods	93	102	9
Primary metal	89	112	23
Fabricated metal	94	93	-1
Nonelectrical machinery	91	99	8
Electrical machinery	89	94	5
Transportation equipment	111	104	-7
Nondurable goods	88	94	6
Food	74	80	6
Chemicals	88	89	1

Table 6
Average Annual Rates of Growth in Real Gross State Product in Selected Manufacturing Industries for Indiana, 1963-1977

Industry	*Average Annual Growth Rate in Indiana*	*Index (U.S. = 100)*
Manufacturing	**2.24**	**86**
Durable goods	2.55	92
Primary metal	1.37	68
Fabricated metal	3.95	111
Nonelectrical machinery	3.66	85
Electrical machinery	3.40	103
Transportation equipment	2.30	205
Nondurable goods	1.38	59
Food	-0.45 (contraction)	
Chemicals	2.73	89



product and wage and salary earnings. As Table 2 showed, Indiana's rate of growth in manufacturing was 86% of the U.S. rate. As Table 5 showed, Indiana's labor earnings rate changed from *below* the U.S. rate in 1963 to *above* the U.S. rate in 1977. The result was downward movement in Indiana's manufacturing profit rate.

Aggregate analysis disguises widely divergent patterns at a disaggregated level. **Table 6** shows that there were widely different rates of growth in real gross product for selected industries between the U.S. and Indiana.

Although the durable goods growth rate was much greater than the nondurables rate, both were less than their respective national rates. Transportation equipment stands out, with its rate more than twice the national rate. On the other hand, the food industry experienced a negative growth rate, and the primary metal industry's rate was only 68% of the national rate.

The transportation equipment industry grew at twice the national rate. Although the earnings rate was above the national one, the direction of change was toward the national rate. The result was an improvement in Indiana's profit rate—although it still remained below the U.S. rate.

In durable goods, a relatively slow growth rate in real product and an earnings rate that went from below to above the national rate put downward pressure on Indiana's profit rate. The story is the same for primary metal and nonelectrical machinery. Fabricated metal grew at a rate greater than the U.S. and had a profit rate that bounced around over the period but ended significantly above the national rate. Electrical machinery grew at the national rate and maintained an impressively high profit rate. The transportation equipment industry grew at twice the national rate. Although the earnings rate was above the national one, the direction of change was toward the national rate. The result was an improvement in Indiana's profit rate—although it still remained below the U.S. rate.

In the nondurable sector, the negative rate of growth in real product for food (in the face of a profit rate that increased over the period to exceed the national rate) implies that many plants were closed and the remaining plants had a profit rate above the national level. Chemicals maintained a profit rate above the national level, with a growth rate to output below the national level.

Chemicals maintained a profit rate above the national level, with a growth rate to output below the national level.

Change as a Constant

With the aid of gross state product estimates by state and by industry, comparisons have been made between Indiana and the nation in terms of growth in production, a measure of profit, and labor earnings. The analysis indicates that there are strong regional differentials, as well as widely divergent patterns within a state (Indiana) at a disaggregated industry level. The regional differentials reflect the redistribution of population to the South and West and the spatial diffusion of the manufacturing belt due to less need to concentrate spatially. The differences among industries indicate that each industry responds differentially to changes in its markets, technology, and costs of production.

The regional differentials reflect the redistribution of population to the South and West and the spatial diffusion of the manufacturing belt due to less need to concentrate spatially.

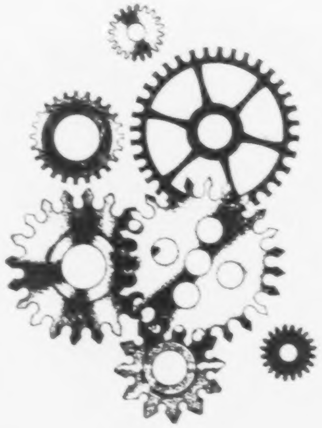
Table 4 indicates that the profitability of Indiana durable goods manufacturing declined relative to the U.S. progressively over the period. Associated with this relative decline, Indiana's annual percent increase in manufacturing capital stock (3.5%) lagged behind the U.S. rate (4.3%).[5]

What are the policy implications? There are a variety of ways to increase relative profitability. They include:

- Reorganization of production to reduce the break-even point;
- Closing of unprofitable activities; and
- Investment in new plant and equipment to increase labor productivity and thereby reduce the unit cost of production.

During the 1980-82 recession, each of these strategies was used by Indiana manufacturing firms. These strategies continue to be used in the face of strong national and international competition.

It will be interesting to update the analysis when 1982 gross state product estimates are available. Significant structural changes are expected to appear at the regional level. For example, New England's economy has shifted to a high-tech economic base. The Southwest's oil-based expansion has been undermined. How will Indiana's economy fare? Change appears to be the only constant and makes an extension from the past an unwise and a risky business. ☐



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[5] Data provided through personal correspondence with Lynn E. Browne, Federal Reserve Bank of Boston.

The Decline of Manufacturing in the Midwest: A Short-Run or Long-Run Problem?

Wayne Bartholomew, Paul A. Joray, and Paul Kochanowski

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The United States economy experienced many difficulties during the 1970s and early 1980s. While real GNP per employed person grew at a 1.8% rate from 1960-1973, it grew at only a 0.1% rate from 1974-1978.[1] Real GNP grew by 2.8% from 1978 to 1979, but declined between 1979 and 1980 and again between 1981 and 1982. The growth rates of other countries remained higher than those in the U.S. during the 1970s, even though these growth rates were decreasing.

While the annual unemployment rates increased in most major industrial nations during the 1970s and the first few years of the 1980s, the U.S. rates were higher than those of most major industrial nations.

As our economy has weakened, economists, planners, and policymakers have tried to develop solutions to these problems. There is considerable disagreement as to the existence, the definition, and the extent of deindustrialization in the U.S. One group argues that our problems stem from severe structural changes in our economy (deindustrialization) and that it is necessary to develop a national industrial policy to correct these structural problems.[2] Others argue that cyclical problems and a highly overvalued dollar are responsible for most of our problems.[3] Those who hold this view believe that a national industrial policy to correct structural problems offers little help and may cause serious problems.

In a recent paper, Barry Bluestone agrees that the data show manufacturing output increasing faster in the U.S. than in most industrialized countries from 1973-1980. He agrees that data on capital expenditures in manufacturing between 1973 and 1979 and evidence on employment for 1973-1980 call into question deindustrialization. Bluestone argues, however, that these *aggregate* data are "inadequate to prove or disprove deindustrialization if interindustry and interregional worker mobility is insufficient to clear labor markets. What counts in an economy where mobility is imperfect are the trends in *specific* industries and regions."[4] Bluestone continues to push for change.

It is quite possible that the national data hide pockets of significant deindustrialization.

Like Professor Bluestone, we believe it is quite possible that the national data hide pockets of significant deindustrialization. We utilize national data in our regressions for comparison purposes, but the focus of our study is the economy of the Great Lakes region and the economies of the five individual states (Illinois, Indiana, Michigan, Ohio, and Wisconsin) that make up that region.

In our analysis, we compare the economy of the Great Lakes region with the U.S. economy, using as a dependent variable the real value added in manufacturing. In these comparisons, we use U.S. real Gross National Product, time, and time squared as independent variables.

In the second section we examine the economies of each of the five states in the Great Lakes region. In this section we again use real value added manufacturing as the dependent variable and U.S. real GNP, time, and time squared as independent variables. Finally, we regress each state's manufacturing output against manufacturing output in the remainder of the region and real GNP *outside* the Great Lakes region. This regression attempts to determine the relative importance of the U.S. economy versus the regional economy on the manufacturing activity in the individual states.

Deindustrialization of the Great Lakes Region: Regression Results

At the basis of the deindustrialization myth case is an econometric relationship between manufacturing output and real GNP. As Robert Lawrence writes:

> The relationship between the growth of manufacturing and the overall growth of the economy can be summarized quite well by using standard econometric analysis. The results show that industrial performance is a magnification of performance in the overall economy: if GNP grows at 1.7 percent per year, there will be no increase in manufacturing production. But for each percentage point increase (decrease) of GNP growth above (below) 1.7 percent, manufacturing output will rise (fall) by 2.2 percentage points. The analysis shows that, based on the estimates from 1960 to 1973, one can forecast industrial production for the period 1973 to 1982, taking actual GNP as given, with remarkable accuracy.[5]

In this section, we apply this same econometric procedure to data for the Great Lakes region.

Our regressions, reported in **Table 1**, show that the relationships between value added in manufacturing and real Gross National Product differ significantly for the national and for the Great Lakes economies. The regression coefficients for the

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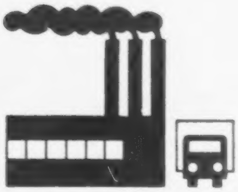
[1] Ira Magaziner and Robert Reich, *Minding America's Business* (New York: Harcourt Brace Jovanovich, 1982): 12.

[2] See Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (New York: Basic Books, 1982); Magaziner and Reich (note 1); and Ronald Muller, *Revitalizing America* (New York: Simon and Schuster, 1980).

[3] Lawrence Kline, "Identifying the Effects of Structural Change" (pp. 1-21); Paul R. Krugman, "Macroeconomic Policy under Structural Change" (pp. 123-57); and Robert Z. Lawrence, "Changes in U.S. Industrial Structure: The Role of Global Forces, Secular Trends, and Transitory Cycles" (pp. 29-79) in *Industrial Change and Public Policy: A Symposium Sponsored by the Federal Reserve Bank of Kansas City*, August 1983.

[4] Barry Bluestone, "Economic Turbulence: Capital Mobility vs Absorptive Capacity in the U.S. Economy," a paper presented at the 1983 meetings of the American Association for the Advancement of Science, Detroit, Michigan, May 29, 1983: 8.

[5] Lawrence (note 3): 37.



percentage change in real GNP (PCRGNPX) and for the natural log of real GNP (LRGNPX) are elasticities indicating the percentage change in manufacturing value added resulting from a one percentage change in real GNP.

While manufacturing output varies on a one-to-one basis with overall activity in the U.S. economy, manufacturing output is a magnification of overall activity in the Great Lakes region.

For both time periods (1947-1972 minus 1948, and 1947 to 1980 minus 1948 and 1979—no data exist for 1948 and 1979), the regression coefficients for real GNP for the national economy are very close to 1, while the regression coefficients for real GNP for the Great Lakes economy are close to 2.5. This suggests that, while manufacturing output varies on a one-to-one basis with overall activity in the U.S. economy, manufacturing output is a magnification of overall activity in the Great Lakes region.

We have to accept the fact that at least some part of what is termed deindustrialization and is generally attributed to foreign competition or other exogenous factors is instead a consequence of the sluggish performance of the overall national economy during the 1970s. Indeed, due to the Great Lakes region's greater sensitivity to real GNP changes, the manufacturing decline accounted for by this sluggish overall performance is greater than that experienced nationally.

Nonetheless, there appears to be more to the decline in manufacturing output for the Great Lakes region than just this cyclical effect. The latter half of the 1970s showed very strong growth in real GNP. If the magnification effect were the factor influencing manufacturing output, then the share of manufacturing output in real GNP should have increased as it did during the expansion of the 1960s. In fact, during the period 1976 to 1979, that share declined for the Great Lakes region and for each of the states in that region.

A first hint that such other factors exist surfaces in the constant terms of equations 1, 2, 3, and 4 of Table 1, where we have regressed the percentage annual growth rate of real manufacturing value added against the annual percentage change in GNP. The constant term in each equation shows the impact that factors other than real GNP had on manufacturing output behavior.

The negative signs on these terms (only equation 1 has a positive term) and the statistical significance of the constants in the third and fourth equations for the Great Lakes region imply the existence of forces depressing manufacturing output below those levels accounted for by changes in real GNP. Such effects are larger for the Great Lakes region than they are for the United States, regardless of time period. In addition, the size of this negative factor increases (by about 50% for equations 3 and 4 and by about 36% for equations 7 and 8) for the Great Lakes region when the years 1973 to 1980 are included in the data sample.

This result contradicts Lawrence's conclusion. It implies that there are factors other than cyclical effects accounting for some of the poor performance in manufacturing output. It implies further that these other factors became increasingly important during the period 1973 to 1979.

Those equations in Table 1 that include time and time squared as explanatory variables yield results that are generally supportive of deindustrialization, especially in the Great Lakes region. The time variables for the U.S. are not significant, and only

Table 1
Regression Results: Relating Real Value Added in Manufacturing at the National and Regional Levels

No.	Dependent variable	*Independent variables* Constant	PCRGNPX	LRGNPX	TIME	TIMESQ	R^2	DW	TIME
1	PCRUSVA	1.8	.94				.09	1.77	72
		(.5)	(1.8)						
2	PCRGL	- .63	1.05				.07	1.82	80
		(.2)	(1.8)						
3	PCRGL	-5.27	2.41				.51	1.62	72
		(2.4)	(5.0)						
4	PCRGL	-7.93	2.76				.46	1.59	80
		(3.3)	(5.1)						
5	LRUSVA	-2.61		1.21	-.008	-.0001	.98	.23	72
		(1.2)		(3.2)	(.65)	(.72)			
6	LRUSVA	-3.72		1.39	.025	-.0010	.96	.87	80
		(1.2)		(2.6)	(1.5)	(6.1)			
7	LRGLVA	-10.0		2.22	-.038	-.0001	.98	.38	72
		(5.5)		(7.4)	(3.4)	(.87)			
8	LRGLVA	-13.6		2.80	-.043	-.0008	.97	1.02	80
		(6.0)		(7.5)	(2.9)	(6.2)			

PCRUSVA = percentage change in real U.S. value added by manufacturers.
PCRGL = percentage change in real Great Lakes region value added by manufacturers.
LRUSVA = natural log of real U.S. value added by manufacturers.
LRGLVA = natural log of real Great Lakes region value added by manufacturers.
PCRGNPX = percentage change in real GNP, minus real value added by manufacturers in region specified in dependent variable.
LRGNPX = natural log of real GNP, minus real value added by manufacturers in region specified in dependent variable.
DW = Durbin Watson statistic, which measures the extent to which the prediction error in one year is correlated with that in the preceding year.

Figures in parentheses are t-values. A t-value greater than 2 provides a high level of confidence that a variable has a statistically significant impact on the dependent variable.

one of the two is negative. In the equations for the Great Lakes region, however, both time variables are significant and both are negative. The results for the time squared variables are mixed. They are negative in all four cases, but only one of these variables is significant in the equations for the U.S., and only one is significant in the equations for the Great Lakes region. Finally, the equations including 1973 to 1980 data have negative time and time squared variables, and three of these four variables are significant.

Thus, manufacturing in the Great Lakes region suffered doubly during the decade of the 1970s. It suffered from its relatively greater sensitivity to the performance of the overall economy, and it suffered from a relatively greater adverse impact from those factors captured in time regressors.

In general, this comparison of the Great Lakes region to the United States with respect to these time terms reveals that the manufacturing output of the Great Lakes region is more adversely affected by the factors being captured by these time trends than is that of the United States. Thus, manufacturing in the Great Lakes region suffered doubly during the decade of the 1970s. It suffered from its relatively greater sensitivity to the performance of the overall economy, and it suffered from a relatively greater adverse impact from those factors captured in time regressors.

As a final piece of evidence, we use the 1947-1972 regressions for real value added in manufacturing to project the level of manufacturing output as a function of real GNP and time for the period 1973 to 1980 (excluding 1979). A comparison of the estimated output in manufacturing to its actual level in each period indicates whether the period since 1973 is simply a reflection of trends that were evident during the 1950s and 1960s or whether it is a break with the past that signals an increasingly deteriorating situation in the manufacturing sector.

Table 2 contains data on the difference between actual and estimated real value added in manufacturing. A positive difference indicates that, based on the period 1950-1972, actual manufacturing output exceeded that forecast by the regression. A negative value signifies that the opposite occurred.

Our calculations based on real value added indicate some erosion in the U.S. manufacturing position over the period 1973 to 1980. As Table 2 shows, the actual levels of real value added in manufacturing were generally below the forecasts by 10 to 30%, except for 1973 and 1980. The shortfall in 1980 is 45%. Such shortfalls are consistent with our findings of increased negativity in the intercepts and time variables in our regressions.

Evidence of the erosion of the manufacturing base in the Great Lakes region is also seen in Table 2. Actual output is not only *lower* than what we would expect based on our forecasting equation, but the magnitude of the shortfall *increases* for the Great Lakes region for the years 1977, 1978, and 1980. When compared with the U.S. economy, however, the shortfalls are slightly lower than those for the U.S. throughout the period 1973-1980.

Deindustrialization of the Great Lakes States

Regression equations similar to those estimated for the Great Lakes region are given in **Table 3** for Illinois, Indiana, Michigan, Ohio, and Wisconsin. Coefficients for the

Table 2
Actual Minus Forecasted Value Added in Manufacturing for the United States and the Great Lakes Region

Region	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1980*
U.S.	-3%	-14%	-30%	-27%	-26%	-28%	-45%
Great Lakes Region	-1	- 9	-20	-15	-16	-18	-41

Table 3
Value Added by Manufacturers in Individual States as a Function of the Overall Level of Economic Activity, Time, and Time Squared

State	*Constant*	*LRGNPX*	*TIME*	*TIMESQ*	*R^2*	*DW*	*F*
Illinois	-10.89	2.12	-.02	-.0007	.96	.60	275
	(5.4)	(6.4)	(1.8)	(5.3)			
Indiana	-15.31	2.71	-.04	-.0006	.98	1.07	425
	(7.8)	(8.5)	(3.0)	(5.4)			
Michigan	-21.16	3.77	-.08	-.0007	.93	1.32	135
	(6.9)	(7.5)	(4.0)	(3.6)			
Ohio	-14.24	2.67	-.04	-.0008	.98	1.27	474
	(8.8)	(10.0)	(3.4)	(8.3)			
Wisconsin	- 9.82	1.77	-.02	-.0004	.99	1.11	781
	(7.2)	(8.0)	(1.8)	(4.1)			

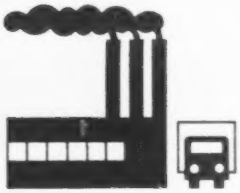
The dependent variable is the natural log of real value added by manufacturers in the state under consideration.

LRGNPX = natural log of real GNP minus the value added by manufacturers in the state under consideration.

DW = Durbin-Watson statistic, which measures the extent to which the prediction error in one year is correlated with that in the preceding year.

F = F-value, a ratio of the variance in the dependent variable accounted for by the model to the variance in the dependent variable accounted for by factors outside the model. A higher F-value indicates a more powerful model.

Figures in parentheses are t-values. A t-value greater than 2 provides a high level of confidence that a variable has a statistically significant impact on the dependent variable.



independent variables (for example, 2.12 for LRGNPX for Illinois) are again elasticities measuring the percentage change in real value added in Illinois manufacturing for each one percent change in the independent variable.

A comparison of results in Tables 1 and 3 does not reveal any major differences between the behavior of the Great Lakes region as a whole and the behavior of the individual states that comprise that region. Manufacturing output in all of the Great Lakes states is highly sensitive to national business conditions. In addition, all of the equations in Table 3 reveal a significant negative trend in manufacturing value added. After controlling for the impact of national business conditions, value added in manufacturing for all five Great Lakes states has declined over time, with this decline worsening in later years.

As in the case of the Great Lakes region, our results lead us to reject the argument that the decline in the manufacturing sectors of Illinois, Indiana, Michigan, Ohio, and Wisconsin is explained entirely by the slow growth of real GNP. The magnification effect that should have happened in the late 1970s never transpired.

Table 4 confirms this result. It shows the actual growth rates in manufacturing output and the expected growth of manufacturing output based on growth of real GNP for the years 1973-1978 and 1980. Indeed, manufacturing output in all of the Great Lakes states declined in 1980, while the national economy continued to expand. Had the magnification effect worked, Michigan would have had an 11% increase in its manufacturing output in 1980 instead of experiencing a 33% decline.

As previously mentioned, our comparison of Tables 1 and 3 for the Great Lakes region and for the state of Indiana raises this question: Is deindustrialization in Indiana due primarily to a decline in the Great Lakes markets that Indiana depends on to sell its goods? Equations 1 through 4 in **Table 5** shed light on this question.

Casual observation suggests that much of Indiana's manufacturing output is sold to other Great Lakes states. Consequently, the impact of the national economy on Indiana manufacturing may be predominantly an indirect one. To separate direct from indirect effects, we regress real value added in Indiana manufacturing against real value added in manufacturing in the Great Lakes region, LRGLVAX, and real GNP, LRGNPX. The measure of value added for the Great Lakes region, LRGLVAX, excludes Indiana. The measure of real GNP, LRGNPX, excludes that part of real GNP attributable to value added in manufacturing in the Great Lakes region. Coefficients for the independent variables (for example, 2.71 for LRGNPX) are elasticities measuring the percentage change in real value added in Indiana manufacturing for each one percent change in the independent variables.

Our findings, based on equations 1 through 4 in Table 5, confirm that much of the impact of the national economy on In-

Table 4
Actual Growth of Real Value Added by Manufacturers Versus Growth Based on Changes in Rate of National Economic Growth

Region & year	*Actual growth in mfg. output*	*Expected growth in mfg. output based on growth in RGNPX**	*Difference: actual less expected*
U.S			
1973	7.29%	6.35%	.94%
1974	- 8.67	2.59	-11.26
1975	-12.30	4.99	-17.29
1976	8.68	10.03	1.35
1977	6.96	6.18	.78
1978	4.67	6.21	- 1.54
1980	-10.30	7.28	-17.58
Great Lakes			
1973	7.65%	12.48%	- 4.83%
1974	-11.12	.40	-11.52
1975	-14.66	- .53	-14.13
1976	11.65	11.19	.46
1977	6.26	12.12	- 5.86
1978	3.98	11.32	- 7.34
1980	-20.87	8.72	-29.59
Illinois			
1973	6.35	12.20	- 5.85
1974	- 8.60	-1.03	- 7.56
1975	-12.09	-2.10	- 9.99
1976	5.59	11.46	- 5.87
1977	4.36	11.71	- 7.36
1978	3.75	10.71	- 6.95
1980	-14.13	5.75	-19.88
INDIANA			
1973	8.62	15.55	- 6.93
1974	- 9.95	-1.46	- 8.49
1975	-18.87	-2.74	-16.13
1976	15.34	14.45	.89
1977	6.29	14.91	- 8.62
1978	5.40	13.62	- 8.22
1980	-20.18	7.20	-27.38
Michigan			
1973	8.84	21.55	-12.70
1974	-20.66	-1.08	-19.58
1975	-15.39	-3.70	-11.69
1976	22.58	19.62	2.96
1977	8.43	20.61	-12.18
1978	3.68	19.04	-15.35
1980	-33.06	11.16	-44.22
Ohio			
1973	7.44	15.31	- 7.87
1974	- 7.86	-1.31	- 6.55
1975	-17.10	-2.36	-14.74
1976	9.02	14.29	- 5.27
1977	7.03	14.64	- 7.61
1978	3.10	13.52	-10.42
1980	-19.74	7.52	-27.27
Wisconsin			
1973	7.35	10.19	- 2.84
1974	- 5.14	-1.07	- 4.07
1975	- 6.98	-2.02	- 4.96
1976	7.72	9.55	- 1.83
1977	4.15	9.76	- 5.61
1978	5.56	8.90	- 3.34
1980	-13.62	4.53	-18.16

* The expected growth rates were calculated by multiplying the actual percentage change in RGNPX times the coefficients for LRGNPX in Table 3.

RGNPX = real GNP minus value added by manufacturers of the region or state for which the expected growth in manufacturing output is calculated.

LRGNPX = the natural log of RGNPX.

Table 5
Regression Results: Value Added in Manufacturing in Indiana
(with LRINVA the dependent variable for all equations)

	Independent variables						
No.	*Constant*	*LRGNPX*	*LRGLVAX*	*TIME*	*TIMESQ*	*R^2*	*DW*
1	-15.31	2.71		.04	-.0006	.98	1.1
	(7.8)	(8.5)		(3.0)	(5.4)		
2	- 2.86	.16	.99			.99	1.7
	(34.1)	(5.5)	(30.7)				
3	- 2.04	.009	1.01	.005		.99	1.8
	(2.1)	(.05)	(25.0)	(.86)			
4	- 1.83	-.035	1.03	.005	.00002	.99	1.8
	(1.6)	(.16)	(16.2)	(.88)	(.35)		

LRINVA = the natural log of real value added by manufacturers in Indiana.
LRGNPX = the natural log of real gross national product minus value added by manufacturers in the Great Lakes region.
LRGLVAX = the natural log of value added by manufacturers in the Great Lakes region minus value added by manufacturers in Indiana.
DW = Durbin-Watson statistic, which measures the extent to which the prediction error in one year is correlated with that in the preceding year.

Figures in parentheses are t-values. A t-value greater than 2 provides a high level of confidence that a variable has a statistically significant impact on the dependent variable.

diana value added in manufacturing is indirect. The direct impact of real GNP on Indiana's manufacturing output falls far below that given in equation 1. Further, the elasticities on Great Lakes value added in equations 2 through 4 are fairly close to one. Consequently, whatever effect the national economy exerts on the Great Lakes region's manufacturing activity, Indiana's manufacturing output will have a tendency to mirror that same effect. A 1% decline in real GNP, for instance, results in a decline in Indiana manufacturing value added of 2.2% to 2.8%. More than 95% of this decline can be attributed to the fall in manufacturing output in the other Great Lakes states.

Most of the negative trend effect present in equation 1 is also indirect. We have noted that, in the period 1973 to 1980, the growth of real value added in Indiana manufacturing was about 10% below what would have been expected based on the growth rate of real GNP. That -10% is accounted for by the time trend variables given in equation 1. Equation 4 in Table 5 contains the direct impact of these time trends after eliminating indirect trends transmitting their impact on Indiana manufacturing through variable LRGLVAX.

A comparison of equations 1 and 4 indicates the following:

- The linear trend effect in equation 4, given by the coefficient on TIME of 0.005, is positive but only about one-eighth the comparable coefficient in equation 1.
- The non-linear trend effect, given by TIMESQ, is positive in equation 4 while negative in equation 1.

Based on these findings, we conclude that, after controlling for the indirect trend effect and other effects, there remains virtually no direct trend in Indiana's manufacturing value added. In other words, when the impacts of the regional and national economies are accounted for, there is no trend unique to Indiana.

We have calculated the relative importance of these direct and indirect trend effects. From 1976 through 1980, the total trend effect, direct plus indirect, is between -7.66% and -8.14%. The direct part of that trend ranges from 0.62% to 0.64%. Since the direct part of the trends is positive, the indirect effect of negative time trends, which transmit their impact to Indiana value added in manufacturing through value added in the Great Lakes region, accounts for more than 100% of the total negative trend experienced by Indiana's manufacturing output. For example, if the total trend effect is -7.66% and the direct part of the trend effect is + .62%, then the indirect portion of that trend is -8.28%; therefore, the indirect effect equals 108% of the total trend effect.

Our conclusions based on the regression analysis of Indiana are essentially those given for the Great Lakes region. The regressions for Indiana do not support the contention that deindustrialization is a byproduct of a stagnant national economy. Magnification effects that should have swelled manufacturing output during the late 1970s never materialized in Indiana. Our calculations for this period show that, on the average, real Indiana value added in manufacturing fell 8% below the level predicted based on growth in the national economy.

Indiana's deindustrialization appears to be more a consequence of its dependence on Great Lakes markets than of anything unique to Indiana. Neither national business conditions nor trends have very large direct effects on Indiana, and the effects that are present are positive rather than negative. Because of Indiana's dependence on markets in Illinois, Ohio, Michigan, and Wisconsin, deindustrialization in Indiana simply mirrors the deindustrialization taking place in these states.

What Does It Mean?

The results of our research clearly indicate that deindustrialization is occurring in the Great Lakes region as a whole, as well as in each of the states that make up the region, including Indiana. However, our research does not allow us to identify why this deindustrialization is occurring, although there are several possibilities.

The industry mix may be at the heart of the problem. The region contains several industries that are finding it increasingly hard to compete with foreign firms. Steel and automobiles are just two examples. It is possible that if this region had the same industrial mix as the rest of the nation, it would not be experiencing deindustrialization.

Another possibility is that plants located in the Great Lakes region tend to be older than plants located in other parts of the nation. To the extent that they do not contain the latest technological innovations, these plants may not be able to compete with newer plants in the United States and around the world.

It is also possible that wages are significantly higher in this part of the country, and that firms employing workers at these higher rates are not able to compete successfully with similar firms located in sections of the country (and around the world) where wages are substantially lower. Our initial research on this particular problem, however, leads us to conclude that relative wage differentials are probably not an important cause of the region's manufacturing difficulties.

It is also possible that wages are significantly higher in this part of the country, and that firms employing workers at these higher rates are not able to compete successfully with similar firms located in sections of the country (and around the world) where wages are substantially lower.

Another possibility is that, while wages themselves are not an important cause of the region's problems, unionization of the manufacturing labor force may be significant. It is widely known that workers in the manufacturing sectors of such states as Michigan, Ohio, and Indiana are highly unionized, in unions that tend to be some of the most powerful in the country. It is possible that, as these unions have attempted to secure better working conditions for their members, certain inefficiencies have been built into the environment in which firms in this region must operate. This could result in area firms operating at a disadvantage compared with firms in less unionized parts of the United States and the rest of the world.

If future research is able to identify the cause of the deindustrialization occurring in the region, it may very well be a combination of factors. Some we have mentioned; some we have yet to identify. ☐

Aiming for Growth in Indiana's Manufacturing Sector: A Targeted Industry Approach

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As the current economic recovery continues to mature and age, a question comes to mind: What should Indiana be doing to soften the effects of any future recession? To answer this question, it is necessary to identify the underlying structural features that cause Indiana's economy to suffer more during recessions than does the nation as a whole. Just such direction is provided in two articles that have appeared recently in the *Indiana Business Review* (*IBR*): one by William Ritteman[1] and the other by Yochanan Shachmurove.[2]

Ritteman performed an aggregate analysis to study the effects of the industrial mix on this state's employment growth from 1960 to 1981. Comparing Indiana actual end-of-period employment to Indiana employment adjusted to reflect U.S. industrial mix patterns, Ritteman examined the impact of the state's industrial mix on the economy's business cycle. He did this by subdividing the period 1960-1981 into four periods of recession and four periods of expansion.

Ritteman found that, had Indiana's industrial mix been similar to the nation's as a whole, Indiana would have lost, on average, 56% fewer jobs during the four periods of recession. However, while Indiana's industrial mix played a major role in job losses during periods of recession, it did not provide an equal and opposite effect to stimulate employment growth during periods of economic expansion. Over the four periods of expansion, Indiana enjoyed an average growth in jobs of only 5.4% due to industrial mix. Because Indiana's employment gains during economic expansions were insufficient to offset employment losses during economic downturns, Ritteman concluded that a second factor, differential intra-industry growth rates at the state and national levels, also played an important role.

Shachmurove extended this analysis by looking at 24 sectors of the economy to examine the relationship between state and national employment levels. Noting that manufacturing in Indiana represented 41% of the state's earned income in 1979, compared to only 26% nationally, Shachmurove reiterated the problems caused by Indiana's procyclical industrial mix. Supporting Ritteman's hypothesis that differing intra-industry growth rates at the state and national level are hurting Indiana's economy, Shachmurove stated:

> Indiana has become more dependent on the manufacturing sector. Industries in which Indiana specializes, such as primary metals and transportation equipment, are below the U.S. average growth rate in manufacturing in the last decade.[3]

Targeting Industries

These studies make clear the answer to the question, "What should Indiana be doing?" This state must diversify its industrial base. Furthermore, diversification must be achieved by targeting industries that:

- Have good growth potential;
- Are minimally vulnerable to recession; and
- Would have a significant community economic impact.

Given the above criteria, this article seeks to identify the manufacturing industries that Indiana should target for location or expansion within the state.

To be as specific as possible in identifying industrial candidates, the initial analysis examined industries at the four-digit Standard Industrial Code (SIC) level. In order to narrow the hundreds of listed industries to a manageable level, Indiana Department of Commerce calculations for

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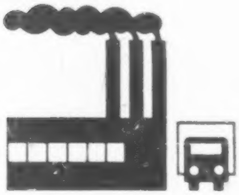
[1] William Ritteman, "Indiana Employment Growth, 1960-1981: An Examination of the Industrial Mix Hypothesis," *Indiana Business Review*, July-August 1984: 2-9.

[2] Yochanan Shachmurove, "Changes in the Dependence of State Employment in the Last Decade: Some Evidence," *Indiana Business Review*, March-April 1985: 8-13.

[3] Shachmurove (note 2): 10.



U.S. employment growth rates from 1972-1981 were reviewed.[4] In one study, an initial minimum screening criterion of 25% national employment growth during those years was used to derive a list of 66 industries. Because detail specific to Indiana was not available for all 66 industries at the four-digit SIC level, data at the three-digit level were used when four-digit data were lacking. This reduced the initial list from 66 to 56 industries.

These 56 industries were then subjected to an analysis of 12 different indicators, which were grouped into the three categories mentioned above:

1. Economic growth potential;
2. Relative invulnerability to recession (recession-proof); and
3. Significant local economic impact

These "factor" measures of economic performance, and the rationale for using them, are as follows.

Growth Potential

1. The national percentage point growth in constant 1981 dollar value of shipments generated per employee from 1972 to 1977 in each of the SICs analyzed. *Rationale*: The increase in value of shipments per em-

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4. U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1985*, January 1985: 5-15.

Table 1
Targeted Industry Factor Scores

		Growth Potential					*Recession Proof*				*Economic Impact*		
		1*	2*	3*	4†	5†	6*	7†	8†	9†	10*	11†	12†
SIC	Industry	U.S. Annual Growth 1972-77 $/Emp.	U.S. Annual Growth 1977-1981 $/Emp.	Indiana Actual vs. Potential Emp. Growth 1972-77	Indiana Actual vs. Potential Emp. Growth 1977-81	Indiana Regional Share (%) 1977-81	Annual Margin % Change 1977-81	Indiana Industrial Mix (%) 1977-81	U.S. % Emp. Growth 1981-82	Indiana-U.S. % Emp. Growth 1981-82	U.S. $ per employee 1981	1981 Location Quotient	% Growth Location Quotient 1977-81
2016	Poultry dressing plants	2.5%	-1.72%	-31.9%	-58.0%	-32.2%	-4.1%	-25.5%	-.6%	9.9%	$85.1	.56%	-37.8%
209	Misc. food & kind products	6.1	-1.71	-18.9	—	—	-7.3	—	—	—	209.0	—	—
233	Women's outerwear	1.2	-1.9	-40.9	-55.0	-132.3	-3.1	-44.8	2.7	13.0	36.3	.08	-52.9
2339	Women's outerwear, n.e.c.	2.5	-2.7	-46.8	-86.0	-389.7	-5.1	-94.3	.3	123.7	39.0	.07	-80.6
2448	Wood pallets & skids	3.6	-2.5	-2.0	-.8	31.0	-5.8	-13.3	-9.3	0.0	42.9	1.61	11.0
2521	Wood office furn.	4.7	.9	18.0	-18.5	25.8	-3.6	-14.31	10.6	1.1	54.7	5.69	-2.4
259	Misc. furniture & fixtures	2.3	2.2	530.4	15.5	25.5	-.1	-14.34	14.2	7.7	65.4	2.04	27.5
26	Paper & allied products	5.8	2.5	4.5	-2.5	1.2	-3.1	-19.1	-4.2	-4.9	126.2	.89	8.5
2647	Sanitary paper products	5.3	3.8	-92.7	185.3	66.9	-1.5	-6.3	1.2	113.1	228.0	.21	208.8
2649	Converted paper products	3.5	2.0	-37.0	-20.3	-9.0	-1.4	-21.0	-12.5	30.2	86.3	1.40	-6.7
275	Commercial printing	2.1	-.6	—	-6.0	20.7	-2.7	-15.3	5.2	11.4	58.1	.79	6.8
2782	Blankbooks & looseleaf binders	2.6	.9	-19.5	-18.7	17.5	-1.6	-15.9	-.8	-5.5	50.4	.62	-3.1
2791	Typesetting	.7	-4.2	-4.6	7.1	21.3	-4.9	-15.1	6.9	14.6	31.1	.897	18.4
2795	Lithographic platemaking	1.7	2.1	29.0	39.5	55.2	.4	-8.5	1.5	-28.9	65.8	.54	35.0
2819	Industrial inorganic chem.	5.6	-.5	26.5	202.7	69.44	-5.8	-5.9	.9	-54.2	148.9	.60	215.8
283	Drugs	1.1	1.2	-15.5	-5.8	4.6	.1	-18.4	—	—	131.5	3.50	2.9
2833	Medicinals & botanicals	70.4	.9	—	.2	4.9	-40.8	-18.3	10.7	123.3	187.8	1.96	12.0
287	Agricultural chemicals	9.9	3.8	-23.0	5.8	5.5	-5.6	-18.2	-7.3	22.0	294.3	1.33	18.8
2992	Lubricating oils & greases	5.6	2.3	—	81.0	56.4	-3.1	-8.3	3.6	-66.0	241.2	.49	88.4
307	Misc. plastic products	3.9	.2	—	-16.7	.4	-3.5	-19.2	-3.9	4.7	72.7	1.60	-5.9
3324	Steel investment foundries	3.5	2.8	6.3	73.3	58.6	-.7	-8.0	-11.1	-46.0	59.7	4.50	62.9
3399	Primary metal products	6.2	11.4	-73.9	-2.2	33.7	4.9	-12.8	-9.7	-39.1	177.2	1.60	8.8
3448	Prefab. metal bldg.	2.8	-1.3	-135.9	-36.0	5.8	-4.0	-18.19	-8.6	2.8	102.4	1.17	-17.6
3479	Metal coating, allied ser.	7.0	9.5	37.5	-12.6	3.3	2.4	-18.65	-.2	.2	98.7	2.60	-1.0
3494	Valves & pipe fittings	3.5	-2.9	7.3	13.4	21.8	-6.2	-15.1	1.3	13.8	63.9	1.10	27.9
3498	Fabricated pipe & fittings	3.4	.04	-77.8	68.4	52.3	-3.2	-9.1	3.2	96.8	91.7	.52	67.7
353	Construction machinery	4.8	2.5	19.3	1524.0	94.1	-2.2	-1.1	-6.8	-1.0	108.0	.71	1320.0
3535	Conveyors & conveying equipment	3.0	.6	479.0	335.1	78.6	-2.3	-4.2	-2.4	-11.3	81.3	-.87	335.0

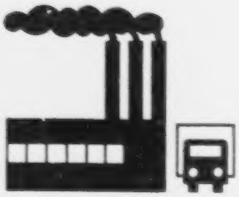

Table 1 (continued)
Targeted Industry Factor Scores

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		1*	2*	3*	4†	5†	6*	7†	8†	9†	10*	11†	12†
SIC	Industry	U.S. Annual Growth 1972-77 $/Emp.	U.S. Annual Growth 1977-81 $/Emp.	Indiana Actual vs. Potential Emp. Growth 1972-77	Indiana Actual vs. Potential Emp. Growth 1977-81	Indiana Regional Share (%) 1977-81	Annual. Margin % Change 1977-81	Indiana Industrial Mix (%) 1977-81	U.S. % Emp. Growth 1981-82	Indiana-U.S. % Emp. Growth 1981-82	U.S. $ per employee 1981	1981 Location Quotient	% Growth Location Quotient 1977-81
3541	Metal-cutting mach. tools	4.7%	4.8%	42.3%	35.6%	38.0%	.2%	-12.0%	-11.2%	26.0%	$78.9	.899%	45.2%
3544	Special tools & dies	1.3	-.2	2.2	9.9	20.6	-1.5	-15.3	-2.1	-11.5	50.4	2.61	21.4
3545	Mach. tool accessories	3.4	1.8	42.3	9.9	15.2	-1.5	-16.4	-5.1	35.7	65.3	.78	5.4
3549	Metalworking mach.	1.5	.3	70.4	1.5	30.8	-1.1	-13.4	-6.6	-6.3	66.0	1.80	12.3
3555	Printing machinery	1.9	.4	—	8.3	30.8	-1.4	-13.5	-3.9	6.1	74.5	.31	19.2
3569	Gen. industr. mach.	1.8	1.5	-17.9	-26.9	18.5	-.3	-15.7	-1.4	-8.7	70.6	.81	8.0
357	Office & computing mach.	2.4	2.2	63.1	157.8	69.43	-.2	-5.9	1.3	58.2	97.6	.05	108.3
3573	Electronic computing equipment	1.4	2.0	—	42.4	-56.1	.5	-8.6	-1.3	98.6	99.9	.03	50.0
358	Refrigeration & serv. machinery	1.0	.1	-3.3	-29.2	-25.8	-1.0	-24.3	-11.0	-.1	89.5	1.23	-21.2
3599	Machinery, except elec.	1.3	.2	—	—	—	-1.1	—	4.1	7.7	48.2	.92	—
3622	Industrial controls	3.1	1.4	79.1	-79.9	-225.5	-1.6	-62.8	2.1	208.2	66.2	.362	-70.0
366	Communication equip.	3.4	.7	-15.8	-18.5	10.2	-2.6	-17.3	7.3	-17.9	70.2	1.09	-5.2
367	Electronic components	2.3	1.5	-39.4	-48.1	-58.6	-.8	18.2	4.9	-13.8	60.4	1.00	-29.6
3675	Electronic capacitators	2.6	3.4	-61.8	6.0	3.5	.8	-18.7	1.6	-1.6	40.5	1.21	18.6
3676	Electronic resistors	1.3	-.8	-30.4	-21.4	-21.4	-2.1	-23.4	-9.9	-31.4	36.2	6.25	-19.5
3678	Electronic connectors	2.6	2.9	-90.3	61.3	54.9	.3	-8.8	-5.5	5.5	65.5	.44	57.1
3679	Electronic components n.e.c.	.8	-.4	—	-36.7	6.5	-.8	-225.1	14.3	33.3	60.6	.50	-18.0
369	Misc. electronic equipment	3.2	-.6	-33.9	-23.8	-23.8	-3.6	-23.9	.9	-14.7	78.8	5.00	-21.9
3693	X-ray machinery	3.5	-2.1	—	100.0	19.8	-5.5	-15.7	19.2	-20.0	77.2	14	-39.1
376	Guided missiles	2.3	1.7	-16.2	3.4	3.4	-.6	-18.9	13.8	-13.8	81.2	.05	0.0
3769	Space vehicle equipment	-2.2	5.4	104.9	44.6	44.6	7.7	-10.9	44.4	-44.4	80.1	.55	175.0
379	Misc. trans. equipment	3.5	.2	9.0	-10.8	-106.8	-3.2	-39.9	-2.8	-3.8	88.8	6.88	-9.9
382	Measuring & controlling devices	1.6	2.2	15.9	1.6	19.5	.6	-15.5	4.0	-6.2	59.5	.96	12.9
3823	Process control instruments	4.6	2.3	69.4	197.5	5.7	-2.3	-6.1	12.6	124.8	65.5	.27	200.0
3825	Instruments to measure electricity	1.0	1.5	-13.0	49.4	43.5	.4	-10.9	14.5	-5.8	60.6	1.14	56.2
3832	Optical instruments & lenses	—	—	—	470.5	84.8	—	-2.9	-4.1	95.9	—	.363	350.0
384	Medical instruments	1.1	1.5	—	-28.3	-14.5	.4	-22.1	2.0	-4.3	67.2	1.20	-16.7
395	Pens, pencils, office supplies	3.4	2.6	-25.3	-11.6	-8.9	-.8	-21.0	-3.1	-19.7	74.0	45	-2.2

---

* The data source for 1972 and 1977 was the *1977 Census of Manufactures*. For 1981, the *1981 Annual Survey of Manufactures* was used.

† The data source for these economic factors was, depending on the year in question, the 1977, 1981, or 1982 edition of *County Business Patterns*. Because the actual data collection was performed before the 1982 Census of Manufactures became available, it was necessary to use *County Business Patterns* as the source for these data. Also, because SIC definitions used for *County Business Patterns* were changed in 1974 and 1975, that source could not be used in all cases.

Note: In cases where rounding to the first digit would have resulted in a tie, figures have been carried to two decimal places for ranking purposes. (See, for example, SIC 2521 and 259 for Factor 7.)

ployee indicates the industry's ability to increase worker productivity.

2. The same measure for the period 1977-1981.

3. The percentage point difference between Indiana employment 1972-1977 growth and U.S. employment growth in the same period.
(An example:
national growth $= -10\%$;
Indiana growth $= 5\%$;
the difference $= 5 - (-10) = 15\%$.)
Rationale: This measure compares Indiana employment growth with U.S. employment growth on a percentage point basis.

4. The same measure for the period 1977-1981.

5. The regional share of absolute 1977-1981 Indiana employment growth as a percentage of 1981 employment. *Rationale*: This measure demonstrates an industry's ability to generate employment growth by increasing its regional share of total U.S. employment growth.

Relative Invulnerability to Recession

6. The annualized inflation-adjusted marginal rate of change in the national 1972-1977 growth rate for value of shipments per employee compared to the 1977-1981 growth rate. These marginal rates of change were derived from the calculations done for factors 1 and 2. *Rationale*: This measure indicates an industry's ability to sustain its rate of growth, as well as its ability to resist economic downturns.

7. The industrial mix (shift) of absolute Indiana employment from 1977-1981 as a percentage of 1981 employment. *Rationale*: The U.S. economy is shifting from an industrial to a service orientation. Generally speaking, the more concentrated employment in a given industry is in Indiana as compared with the nation, the greater the employment losses that can be expected during a recession. Conversely, the closer Indiana's industrial mix is to the national industrial mix, by SIC, the fewer jobs will be lost during a recession.

8. The national growth rate in employment by SIC from 1981 to 1982. *Rationale*: The 1981-1982 period was a recession.

Table 2
Ranking of Top 20 Targeted Industries for Indiana

SIC	*Industry*	*Overall*	*Composite Score**	*Growth Potential*	*Recession Proof*	*Economic Impact*
2647	Sanitary paper products	1	22	5	6	11
3832	Optical instruments & lenses	2	28	1	7	20
259	Misc. furniture & fixtures	3	30	13	4	14
357	Office & computing mach.	4	34	7	2	25
3541	Metal-cutting mach. tools	5	37	4	17	16
353	Construction machinery	6	39	2	28	9
3769	Space vehicle equipment	7	41	15	8	18
3479	Metal coating, allied ser.	8	41	12	19	10
3823	Process control instruments	9	43	9	1	33
2992	Lubricating oils & greases	10	43	3	33	7
3535	Conveyors & conveying equipment	11	45	6	31	8
2833	Medicinals & botanicals	12	49	22	24	3
3498	Fabricated pipe & fittings	13	50	28	11	15
3399	Primary metal products	14	50	11	35	4
3825	Instruments to measure electricity	15	53	26	5	22
2819	Industrial inorganic chemicals	16	58	8	45	5
3324	Steel investment foundries	17	63	10	41	12
287	Agricultural chemicals	18	63	14	47	2
2795	Lithographic platemaking	19	64	20	12	32
3573	Electronic computing equipment	20	68	36	3	29

* In the event of a tie in the composite score (for example, SIC 3769 and 3479, each with a score of 41), the recession proof rank was used as a tie-breaker. For the overall ranking of the composite scores, it was not necessary to divide by the number of categories; each SIC had sufficient data to be ranked in all categories.

Therefore, this factor measures an industry's national performance during a recession.

9. The difference between the Indiana SIC percentage point employment growth for 1981-1982 and the national SIC growth rate. *Rationale*: This measure compares Indiana industrial performance during a recession to national trends.

Economic Impact

10. The 1981 national ratio of value of U.S. shipment dollars per number of U.S. employees. *Rationale*: This measure provides an absolute measure of a given industry's per employee effect on the economy in general.

11. 1981 location quotients for each Indiana industry. *Rationale*: The use of location quotients is one way to identify export-oriented industries (that is, those that market products outside the local economy). Generally speaking, location quotients ≥ 1 signify basic, export-oriented businesses, while location quotients < 1 identify nonbasic industries oriented to the local market.

12. Growth in location quotients from 1977 to 1981. *Rationale*: This measure shows the increasing or decreasing ability of an industry to export its product, thereby increasing or decreasing its multiplier effect on the local economy.

The various percentage changes and employment ratios were calculated for all 56 industries. In some instances, data were not available to calculate a value for each of the 12 economic factors for a specific industry. Usually the unavailable figures were Indiana data for an industry from 1972 to 1977; thus, it was impossible to make interperiod comparisons. (Here intuition and statistics part company. When industry data exist for the 1977-1981 period but not for 1972-1977, that industry must have experienced recent growth in Indiana. However, such an intuitive realization was of little help statistically.)

Table 1 displays the raw values for these 12 economic factors. For each factor, the raw scores were ranked 1 through 56. If, due to insufficient data, a raw score was not calculated for one or more of these factors, the industry in question did not receive a ranking for that factor or factors.

Next, for each of the three categories (growth potential, recession-proof, and economic impact), these "factor rankings" were summed. Because data for some industries were unavailable, this sum of an industry's category ranking was divided by the number of factors for which the industry was ranked. This calculation produced "composite scores," which were ranked to yield a "category ranking." The lower the composite score, the higher the category ranking. Finally, to develop an overall ranking, these three category rankings were in turn summed and ranked from lowest total composite score to highest.

As an example of how these rankings were developed, consider optical instruments and lenses (SIC 3832). For the growth potential category, data were available only for factor 4 (the difference between Indiana and U.S. employment growth rates, 1977-1981) and factor 5 (Indiana's increase in its regional share of employment from 1977-1981). For both factors, SIC 3832 ranked second. Therefore, its composite score for the growth potential category was 2 (4 ÷ 2). This was the lowest of the 56 composite scores for this category. SIC 3832, therefore, was ranked first in terms of growth potential.

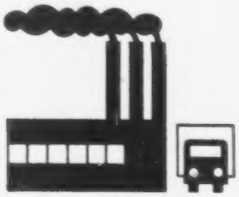
For the recession-proof category, data were available to rank SIC 3832 for factors 7, 8, and 9 (1981 industrial mix, national employment growth 1981-1982, and the percentage point difference between the 1981-1982 employment growth rates for the U.S. and Indiana). SIC 3832 scored 40, 8, and 3 respectively, for a composite score of 17. Therefore, it ranked seventh out of 56 in the recession-proof category.

Finally, for the economic impact category, SIC 3832 scored forty-fifth in the size of its location quotient (factor 11) and second in terms of the percentage growth in its location quotient from 1977-1981 (factor 12). Thus, its composite score was 23.5. This was good enough to rank SIC 3832 (optical instruments and lenses) twentieth in terms of economic impact.

Table 2 lists the overall rankings of the top 20 industries, as well as how they ranked among all 56 industries in each of the three categories. As the table indicates, SIC 3832, with a composite score of 28, ranked second overall.

Broad Economic Trends

A review of the industries listed in Table 2 reveals that three broad trends are under-



way in the economy.

New households. The first trend reflects the demographics of new households being formed. For example, a major product of the sanitary paper products industry (SIC 2647) is the disposable diaper. The *U.S. Industrial Outlook 1985*, published by the U.S. Department of Commerce, forecasts an average annual growth rate of 6.5% for that industry to the end of the decade.[5] Furthermore, the disposable diaper industry projects a growth rate of 5% per year in the export market, primarily to Latin American and Asia.

The formation of new households is also an underlying factor in the growth in demand for furniture and fixtures (SIC 259), as well as construction-related machinery (SIC 353). Growth in demand for construction machinery—generally small and medium-size earth-moving equipment—is projected at 4% per year to 1989. Another factor in the increased demand for construction machinery is the need to repair and replace our decaying roads, bridges, and water and sewage treatment facilities.[6]

High technology. A second broad category is the high technology sector. However, with the exception of SIC 3825, instruments to measure electricity, Indiana has less than its hypothetical share of the nation's employment in these kinds of industries when measured with the use of location quotients (LQ). For example, Indiana's 1981 LQ for SIC 3825 was 1.14. For SIC 3769, space vehicle equipment, the LQ was .55. In SIC 3832, optical instruments and lenses, the LQ was .363. And for SIC 357, office and computing machinery, the LQ was .05.

However, while Indiana as a whole is not blessed with an abundance of jobs in these industries, since 1982 the Indiana Department of Commerce has been building on the natural attractions that universities such as Indiana and Purdue hold for such firms. Even before efforts were organized at the state level to attract these industries, the growth of these high-technology industries in Indiana as measured by their LQ was well underway. From 1977 to 1981, the LQ growth rates of these industries ranged from 56.2% for SIC 3825 (instruments to measure electricity) to 350% for SIC 3832 (optical instruments and lenses). (See Table 1.)

Smokestack industries with growth potential. The last broad category of industries are those that usually are considered smokestack industries, but with the distinction that certain advances in production process technology give them good growth prospects for the future.

For example, SIC 3498, fabricated pipe and fittings, is expected to grow 4.5% annually to 1989.[7] To become more productive, this industry is increasing the use of robotics in the production process and moving towards smaller specialty firms. Another industry, steel investment foundries (SIC 3324) is using modern electric arc furnaces to produce finished and semifinished steel products.

Growth in demand for construction machinery—generally small and medium-size earth-moving equipment—is projected at 4% per year to 1989.

Finally, two related industries in this category are the agricultural chemicals industry (SIC 287) and the industrial inorganic chemical industry (SIC 2819). Within SIC 287 is the nitrogenous fertilizer industry (SIC 2873), which currently is operating at 90% of capacity nationwide. Because SIC 2819 is a major producer of sulfur dioxide, aluminum, and sodium compounds—ingredients used in the production of fertilizer—these two industries are closely related. An emerging production technology field with an application in these industries is, interestingly enough, the removal of sulfur dioxide from coal burned in electric power plants. A number of pollution control technologies are looking at ways to produce fertilizer as a salable byproduct.

How Communities Can Use These Tables

This study began with the premise that there are two significant reasons that Indiana manufacturing has underperformed during the last several business cycles in comparison with the national economy. These reasons are Indiana's industrial mix and an overall inter-industry employment growth history that compares poorly to the nation generally.

Based on this premise, three sets of economic measures were developed to identify those industries that have good employment growth prospects, are not susceptible to economic downturns, and have the potential to increase employment throughout the local economy through a multiplier effect. Applying these economic measures resulted in a list of targeted industries, a list that community leaders can use to increase employment opportunities in their areas.

Because of the iterative ranking process used in developing this list of industries, local officials have a great deal of flexibility in placing particular emphasis on those aspects of an industry's economic performance that a given community deems most desirable. In this study, all 12 economic factors were given equal weight, as were each of the three categories into which they were grouped. Different communities, wishing to emphasize one aspect over another, can easily assign weights to the various measures, thereby producing a different overall ranking of targeted industries.

Finally, this study's methodology for targeting industries lends itself for use in conjunction with local community economic assessment studies. Such reviews, which usually are undertaken to identify the kinds of industries that most likely would be attracted by a community's existing infrastructure and local amenities, could serve as an additional screening mechanism. ☐

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[5] Indiana Department of Commerce, *Indiana Targeted Industries Program*, Division of Economic Analysis, October 1984.

[6] Fred Moavenzadeh, "Construction's High Technology Revolution," *Technology Review*, October 1985: 36.

[7] Forecasts in this section are from the *U.S. Industrial Outlook 1985* (note 5).

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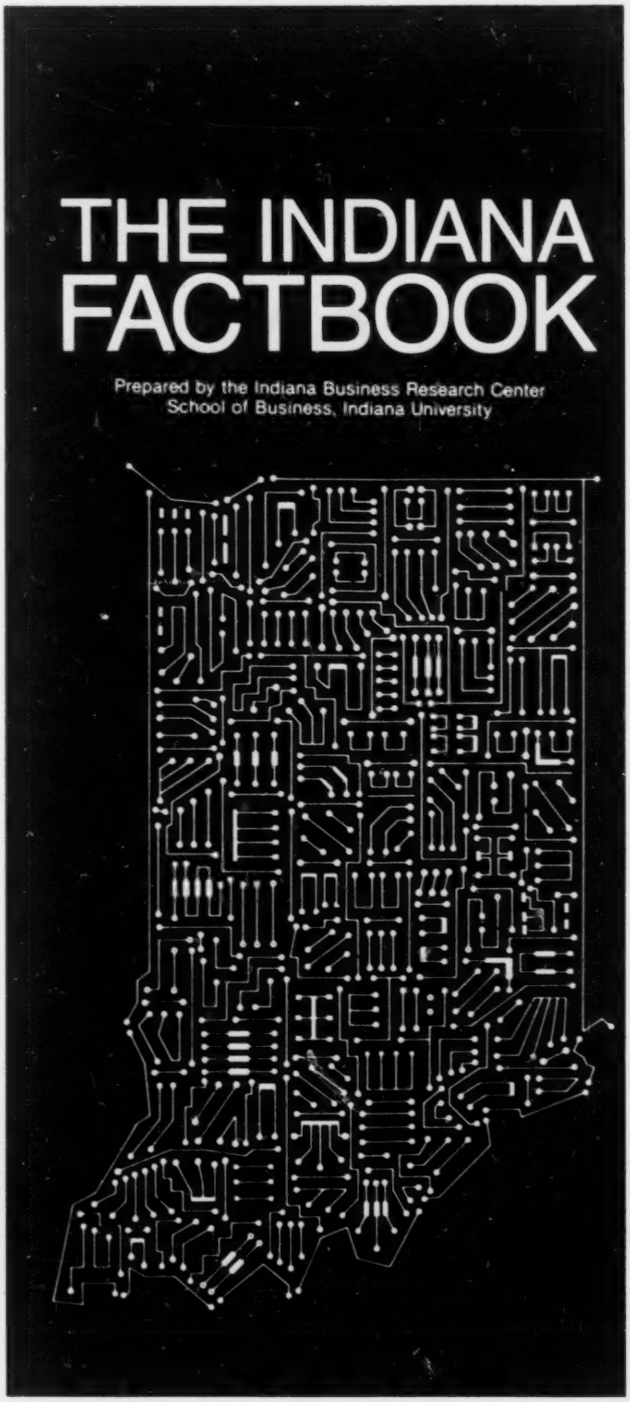

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In this issue . . .

The Outlook for Manufacturing in Indiana

We have to accept the fact that at least some part of what is termed deindustrialization and is generally attributed to foreign competition or other exogenous factors is instead a consequence of the sluggish performance of the overall national economy during the 1970s.

Casual observation suggests that much of Indiana's manufacturing output is sold to other Great Lakes states. Consequently, the impact of the national economy on Indiana manufacturing may be predominantly an indirect one.

While Indiana's industrial mix played a major role in job losses during periods of recession, it did not provide an equal and opposite effect to stimulate employment growth during periods of economic expansion.

Indiana's deindustrialization appears to be more a consequence of its dependence on Great Lakes markets than of anything unique to Indiana. Neither national business conditions nor trends have very large direct effects on Indiana, and the effects that are present are positive rather than negative. Because of Indiana's dependence on markets in Illinois, Ohio, Michigan, and Wisconsin, deindustrialization in Indiana simply mirrors the deindustrialization taking place in these states.

It is possible that if this region had the same industrial mix as the rest of the nation, it would not be experiencing deindustrialization.

Whatever effect the national economy exerts on the Great Lakes region's manufacturing activity, Indiana's manufacturing output will have a tendency to mirror that same effect. A 1% decline in real GNP, for instance, results in a decline in Indiana manufacturing value added of 2.2% to 2.8%.

This state must diversify its industrial base. Furthermore, diversification must be achieved by targeting industries that have good growth potential, are minimally vulnerable to recession, and would have a significant community economic impact.

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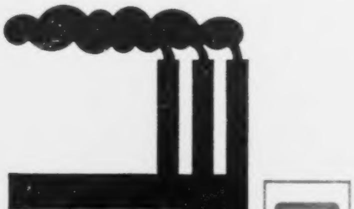

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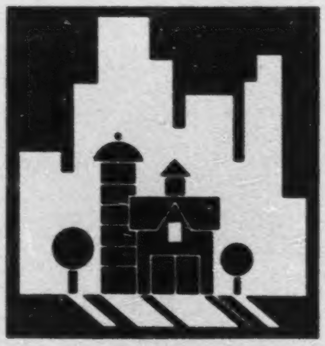
John M. Connor

The Implications of Value Added for Indiana's Food Manufacturing Industries

John M. Huie

Taxes in Indiana: Recent Changes and Anticipated Issues



In this issue . . .

Some Hoosiers have the misguided notion that there is enmity between Indiana and Purdue Universities. Perhaps this issue, composed entirely of articles by Purdue faculty members, can partially dispel that belief.

Whenever the subject of agriculture arises, there is confusion and concern about the full dimensions of that important activity. John M. Connor offers a useful estimate of one part of the food chain in this state. His work should help answer some of the question, "How important is food manufacturing in Indiana?"

Few academic economists enjoy (or suffer) the opportunities for service to their states that John M. Huie has had in Indiana. In these pages the former State Budget Director and Chairman of the State Board of Tax Commissioners examines the subject of taxation in Indiana. No person is more qualified to offer such an overview.

Lest anyone question, allow us to provide the following assurances:

1. It is not necessary for a Purdue faculty member to be named John M. to qualify for publishing an article in the *IBR*.
2. We have not abandoned the pages of this publication to a "foreign" power.

For the last several years the *Indiana Business Review* has been published six times a year. Each issue has been assigned a two-month time span. Often, however, those two months were the months of preparation rather than the month of publication. With this issue we seek to make appearance conform to reality. Though the issues within each year will continue to be numbered consecutively, the date that appears will be the month of actual publication. We will, however, allow ourselves some leeway at the end of the calendar year. The outlook issue with which we traditionally close the year will carry a December date even if we fail to get it to Hoosier hearths by Christmas Eve.

M.J.M.

The Implications of Value Added for Indiana's Food Manufacturing Industries

John M. Connor

The author is assistant head for research and associate professor of agricultural economics at Purdue University. An earlier version of this article was delivered at the Indiana Conference on Value Added for Agribusiness, held in Indianapolis on February 13.

Value added: what does it mean to Indiana agribusiness, particularly to food manufacturing? What role in the Indiana economy is played by the food manufacturing sector? What actions can—or should—be taken by state agencies and state-supported institutions to facilitate or redirect the structural adjustments occurring in Indiana's agribusiness sector? The answers to these questions help us to understand the current state of affairs and to chart a direction for the future.

What Is Value Added?

The term "value added" is becoming one of the hackneyed buzzwords of the 1980s. It means many different things to different people:

- *To people writing about international agricultural trade,* value added food products are the same as processed products. By implication, raw agricultural products have little or no value added to them.
- *To most food scientists and engineers,* value added seems to signify highly processed or highly refined food produced with advanced technologies. One can infer that more traditional foods created with unpatented technologies have little value added.
- *To the marketing managers of food companies,* value added products often are equated with items that can be sold at higher unit prices. That is, compared to close sub-

Figure 1
Economic Definition of Value Added
(% of Sales for a Typical U.S. Food Manufacturer)

Purchased Inputs from Other Firms	
Ingredients	53%
Packaging	9%
Contract work and resales	7%
Advertising	5%
Plant and equipment	2%
Energy	1%
Rents	1%
Interest	1%
Business services	.2%
Payments to Government	
State taxes	3%
Federal taxes	2%

VALUE ADDED BY OTHER FIRMS AND GOVERNMENT (82%)

+

Inputs Provided by Firm	
Wages	6%
Salaries	4%
Fringe benefits	2%
Other selling costs	2%
After-tax profits retained	2%
Repairs, depreciation/Rental value of land and plant	1%
Dividends	1%
R&D	.4%

VALUE ADDED BY THIS FIRM (18%)

= **SALES REVENUE (100%)**

Note: Percentages may not add to 10% due to rounding.
Source: John M. Connor, Richard T. Rogers, Bruce W. Marion, and Willard F. Mueller, *The Food Manufacturing Industries: Structure, Strategies, Performance, and Policies* (Lexington, Mass.: Lexington Books, 1985), Tables A-5 and A-6.

stitutes readily available on the market, such food items use more costly ingredients, have more elaborate packaging, evoke a distinctive image in the minds of buyers, or incorporate some other novel feature of promotional value. In contrast, marketing managers regard plain, unbranded, or generic foods as hopelessly devoid of value added.

- *To most consumers,* value added foods are more or less equivalent to highly convenient, labor-saving items typically perceived as of fairly recent origin. To them, perhaps, ingredients used to prepare foods "from scratch" are low in value added.
- *To state or local economic development officials,* a value added industry is one that is growing, provides jobs, and directly or indirectly spins off a good deal of taxable income. By implication, industries that are slow-growing, low in profits, or efficiently use small-scale factories have little value as tools of economic development.

Which of these concepts of value added is the best? Processed? High-tech? High priced? Convenient? Dynamic? To some extent these various definitions of value added are incompatible, but perhaps there is a common thread as well.

The economist's definition of value added is at once *precise* and *measurable.* Moreover, it integrates most of the disparate meanings currently in use.

In brief, **value added** (which is also termed "net product") is the **difference between a firm's sales revenues and all its payments to other legally separate entities for purchased physical inputs and services.** In other words, value added is the **sum of all returns to factors of production controlled by the firm:** returns to land, structures, equipment, labor, management, and borrowed financial capital. **Figure 1** illustrates this definition.

Note that value added is not the same as profits or gross margins. Indeed, a company can be losing large sums of money in a given year and still be generating substantial value added as long as it continues to operate.

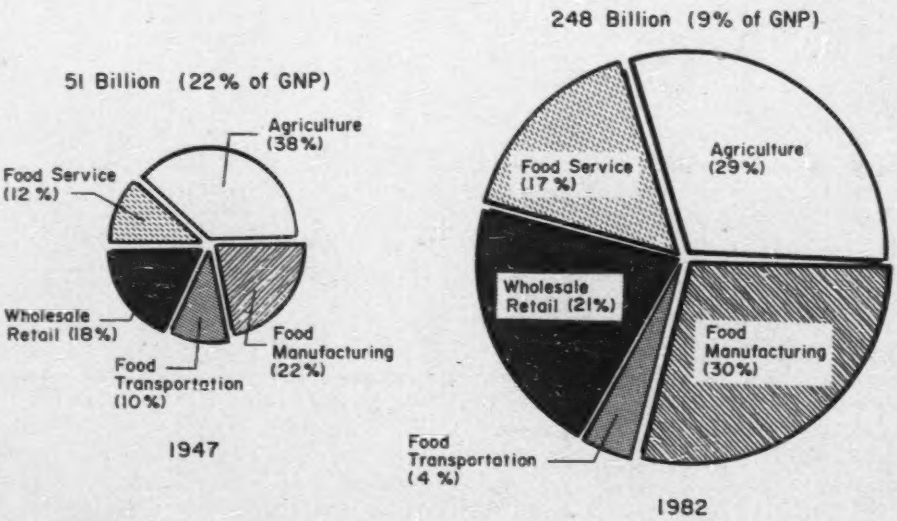
This economic concept of value added has several important features. Unlike sales, the value added of every company contributing to the final consumer product can be summed up without any duplication or double-counting. When a household buys a dollar's worth of food, about 15 cents of that dollar is retained by the food retailer and the retailer's employees for their value added. The retailer spends about 80 cents on purchases from grocery wholesalers. The wholesalers spend about 70 cents on purchases of processed foods from manufacturers. The chain continues back down through the system until it reaches farmers and fishermen, who in turn spend most of their gross receipts on purchased farm supplies. This is the process whereby household food purchases are transmitted throughout the whole economy.

Value added gives an objective and nonduplicative measure of the relative economic contributions of each of the parts of the food system to providing the final products to consumers. In short, value added is the best way of comparing the size of different sectors and measuring the economic contribution of each firm to the whole economy.

Value added gives an objective and nonduplicative measure of the relative economic contributions of each of the parts of the food system to providing the final products to consumers.

The 1982 contributions of agriculture and each major stage of the agribusiness subsector are shown in **Figure 2.** In 1982, the U.S. food system generated almost $250 billion, about 9% of the total, to the U.S. Gross

Figure 2
Value Added by the U.S. Food System, 1947 and 1982 (% of U.S. GNP)



Note: This figure excludes the value added by industries supplying inputs to the stages of the food system above.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982,* Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Table 3.

National Product. Although not shown in the figure, some analysts include all the input-supplying industries as well—fertilizer, tractors, food processing machinery, trucks, construction, and so forth—which would raise the 1982 contribution of the total food and fiber system to at least $450 billion, about 15% of U.S. GNP.

In 1982, manufacturing was the largest single component of the food system, three-tenths of the total, followed by agriculture (29%), food distribution (21%), and food service (17%).

The relative sizes of the food system and its components have shifted markedly during the post-World War II period. In 1947 the food system's value added was only $51 billion ($181 billion in 1982 dollars), but its share of the U.S. economy was more than twice as large as in 1982. Even more striking are the changed slices of the pie shown in Figure 2.

In 1947, agriculture dominated the system, with nearly two-fifths of the system's value added. Food manufacturing was slightly more than one-fifth. But now their positions have reversed. The share of food distribution (wholesale and retail trade) has remained unchanged at about one-fifth. The role played by transportation is much diminished. In percentage terms, value added changed the most for food service (commercial retail eating places), its share almost quadrupling between 1947 and 1982.

Table 1
Indiana Agribusiness Employment, 1963 and 1982

Industry	1963 Total	1963 Proportion of Indiana Sector (%)	1982 Total	1982 Proportion of Indiana Sector (%)
Food manufacturing	45,900	9.0	32,900	6.3
Farm and food wholesaling	16,500	20.6	22,200	21.4
Food retailing	33,500	38.1	58,100	48.6
Food service	44,200		113,300	
Total (private nonfarm)	**140,100**	11.7	**226,500**	13.5

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Tables 6 and 7.

Table 2
Sales by Indiana Agribusiness Firms, 1963 and 1982
(in billions of dollars)

Industry	1963 Current Dollars (in billions)	1963 1963 Dollars (in billions)	1982 Current Dollars (in billions)	1982 1963 Dollars (in billions)
Food manufacturing	2.0	2.0	6.2	2.2
Farm and food wholesaling	2.4	2.4	9.5	3.8
Food retailing	1.3	1.3	5.5	1.8
Food service	0.6	0.6	2.3	0.8
Total (private nonfarm)	6.3	6.3	23.5	8.6

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Tables 9 and 10.

Agribusiness in Indiana

Now that we have defined *value added*, let us turn to *agribusiness*. For the purposes of this article, "agribusiness" includes all of the post-harvest, off-farm functions of the food system:

- Farm raw product assembly;
- Food, feed, and beverage manufacturing;
- Grocery product wholesaling;
- Food retailing; and
- Commercial eating and drinking places.

Even with this fairly conservative definition—which excludes farming, farm-supply wholesalers, and manufacturers of food-system inputs of all kinds—it is clear that agribusiness is a big business in Indiana. There were about 19,000 such businesses operating in Indiana in 1982, of which roughly 5,000 were family-run businesses that had no salaried employees. The number of food retailing businesses with salaried employees peaked around 1970 at about 14,000. The number of all other kinds of agribusinesses in Indiana has declined since the early 1960s.

Agribusiness *employment* trends are quite different from business-numbers trends in several respects (see **Table 1**). Overall, employment in Indiana's agribusiness industries has risen smartly: up 62% from 1963 to 1982. Moreover, agribusiness employment rose faster than in any other sector of the Indiana economy. In 1963 agribusiness firms employed 11.7% of all Hoosiers (excluding government, military, and farm workers). By 1982 agribusiness accounted for 13.5% of all private-sector jobs. (The food system *broadly* defined probably employed 21% to 24% of all Indiana workers.) In 1982, food retailing and food services accounted for a surprisingly high 49% of all retail-trade jobs in Indiana; for wholesaling the agribusiness share was about one-fifth; and only 6% of manufacturing jobs were in food-processing plants.

One of the unfortunate drawbacks of using value added as a measure of size is that, except for mining and manufacturing, value added data are not calculated for individual industries at the state level. Another disadvantage is that value added is directly affected by the degree of vertical integration. For example, value added is high in bakery and soft-drinks bottling because these industries perform many direct delivery functions; that is, these processors are vertically integrated into the transportation sector.

As an alternative measure of output value, we developed some data on sales. (To the extent that Indiana-based companies are involved in vertically related sales to each other, these sales data involve substantial double counting.) Total sales in 1982 were $23.5 billion (as compared to average 1980-82 farm cash receipts of about $3.9 billion), up from $6.3 billion in 1963 (see **Table 2**). In deflated terms, however, these industries grew only about 37% in the 19-year period, about 1.7% per year. Most real growth occurred up to the late 1970s. By 1982 real growth had fallen about 15%, but it has since climbed back to its late 1970s peak.

Food Manufacturing

Nationally, the U.S. Bureau of the Census recognizes 47 distinct food and beverage industries. These industries, taken together, shipped more than $280 billion worth of processed products in 1982, making this combination the largest of the 20 major industry groups in the U.S. manufacturing sector. (The largest food processing industry is meat-packing, with $30 billion in shipments in 1982. The smallest is chewing gum, with less than $1 billion.) Employment in the food manufacturing industries totaled 1.8 million, a level that has remained virtually unchanged since the 1950s.

Value added varies across the various food manufacturing industries. The value added contributed by a single worker varies enormously, as well as the value added per

Table 3
Value Added Across Selected U.S. Food Manufacturing Industries, 1982

Industry	*Value Added per Dollar of Shipments (in Cents)*	*Value Added per Employee (in Dollars)*	*Average Hourly Earnings of Production Workers (in Dollars)*
High Value Added:			
Breakfast cereals	63	168,100	12.91
Flavorings	63	230,200	8.20
Cookies and crackers	60	61,200	8.42
Bread, rolls, and cakes	60	46,100	8.68
Pasta products	52	65,600	7.45
Pet foods	52	131,100	8.78
Miscellaneous prepared foods	52	69,600	7.02
Confectionery	48	60,400	7.27
Distilled liquors	47	119,700	10.15
Dried fruits and vegetables	45	58,100	8.18
Chocolate and cocoa	45	99,700	9.04
Frozen fruits and vegetables	45	50,500	6.57
Canned specialties	43	75,600	8.04
Flour mixes and doughs	43	89,600	9.00
Pickles, sauces, and dressings	41	79,000	7.83
Frozen specialties	41	48,700	6.79
Soft drinks bottling	41	60,200	7.84
Beer	41	105,500	15.37
Moderate Value Added:			
Canned fruits and vegetables	38	50,400	7.24
Wines	36	84,500	9.80
Wet corn milling	35	121,800	12.36
Animal fat rendering	32	52,100	8.25
Ice cream	32	51,100	8.48
Prepared milk products	31	118,700	9.10
Poultry and egg processing	27	29,500	5.38
Shortening and cooking oils	26	101,000	9.88
Low Value Added:			
Processed meats	24	44,300	8.68
Fluid milk products	22	49,700	8.90
Flour milling	22	72,500	9.64
Poultry dressing	21	18,000	5.02
Animal feeds	19	58,300	7.25
Cheese	17	60,000	7.66
Meat-packing	13	43,100	9.06
Soybean crushing	8	76,200	9.19
Butter	8	61,600	8.14

Note: High, moderate, and low value added are based on value added/shipments ratios of over 40%, 25% to 40%, and below 25%, respectively. Note that the gross value added data taken from Census sources are slightly larger than the net value added data derived from input-output methods.
Source: U.S. Census Bureau.

dollar of sales (see **Table 3**). The high value added industries in Table 3 conform to most of the preconceptions about products that are high in value added: they are

- Highly processed (not mere "commodities");
- For the most part, packaged consumer goods;
- Relatively convenient to use; and
- Tend to be made by faster growing, more profitable (taxable) companies.

However, note that value added per employee is positively, but not closely, related to value added per dollar of shipments (r = +0.46). Value added per worker is high in food industries that are especially capital-intensive: flavorings, wet corn milling, flour mixes, alcoholic beverages, and vegetable oils.

Wages of production workers vary considerably among the food industries. Workers in the breakfast cereals, wet corn milling, and the alcoholic beverage industries were paid the highest wages in 1982. Pay in the poultry dressing industry was by far the lowest. In part these differences in wage rates reflect regional factors and historical differences in the assertiveness of organized labor. However, there is also a fairly strong correspondence between the value added generated per worker and the pay scale in an industry (r = +0.53). Therefore, high value added industries are desirable because they generate greater taxable income as well as providing better-paying jobs.

High value added industries are desirable because they generate greater taxable income as well as providing better-paying jobs.

Table 4
Food Manufacturing in Indiana by Size of Shipments, 1982

Industry	*Number of Plants*	*Number of Employees*	*Value of Shipments (in Millions of Dollars)*
Meat-packing	51	2,800	606
Soft drinks bottling	41	3,400	525
Wet corn milling	4	1,700	499
Soybean crushing	6	700	497
Bread, rolls, and cakes	30	4,600	438
Prepared milk products	4	1,600	413
Fluid milk bottling	22	1,600	349
Miscellaneous prepared foods	38	2,000	339
Animal feeds	55	900	296
Canned specialties	7	1,700	252
Processed red meats	21	1,100	189
Distilled liquors	2	1,000	185
Flavorings	8	700	183
Flour mixes and doughs	2	700	163
Flour milling	11	500	143
Shortening and cooking oils	4	500	139
Beer	3	700	127
Poultry dressing	10	1,400	125
Candy	15	1,000	125
Cheese	7	400	91
Other industries (17)	107	3,900	512
Total	**446**	**32,900**	**6,188**

Note: Some figures are slightly estimated.

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986). Appendix Tables, 1, 2, and 3.

Indiana's Food Manufacturing Industries

In 1982 the Census Bureau counted 446 food manufacturing plants operating in Indiana (see **Table 4**). Those plants were spread across 37 of the possible 47 food manufacturing industries, and distribution ranged from 55 plants making prepared animal feeds to only one small plant manufacturing breakfast cereals. Because a few companies owned and operated two or more plants, there were perhaps 420 or 430 different food manufacturing companies represented in Indiana in 1982.

Indiana's food processing operations employed 32,900 workers in 1982. (This number does not include a few hundred additional employees who worked in separate headquarters or R&D buildings belonging to food manufacturing firms.) The output of these plants totaled $6.2 billion in 1982. Shipments were concentrated in relatively few large industries. The six largest industries accounted for nearly half of total manufacturing value of the food industries, and the ten leading industries accounted for more than two-thirds of Indiana output. Half of the industries represented in Indiana (19 of 37) each had more than $100 million in shipments in 1982. Employment is concentrated in relatively few industries: six (bread, soft drinks, meatpacking, miscellaneous foods, corn refining, and canned specialties) account for 50% of the total.

Contraction of Food Manufacturing in Indiana

The changes in Indiana's food manufacturing industries are disappointing, indeed even disturbing, in terms of both plant closings and job losses.

Plant Closings. First, the number of food manufacturing plants was just about halved in 19 years—from 878 establishments in 1963 to only 446 in 1982. Plant shutdowns affected nearly every line of commerce. The largest declines in plant numbers were in industries serving customers in geographically localized markets: ice cream, fluid milk, bread, and soft-drinks bottling. In only six Indiana food-processing industries did the net number of plants *increase* between 1963 and 1982: frozen foods, wet corn milling, candy, and three vegetable oils industries.

> *The number of food manufacturing plants was just about halved in 19 years—from 878 establishments in 1963 to only 446 in 1982.*

Job Losses. Second, employment trends from 1963 to 1982 were also discouraging. The industries as a whole lost 13,000 jobs between 1963 and 1982—a 28% decrease. Data from 1985 show only a very modest recovery from the depths of the 1982 recession. Employment in 1985 totaled about 35,500, a 23% decrease since 1963. Because the rate of plant closings was far greater than the rate of job losses, one can infer that it was mainly smaller plants that were closing their doors during this period. The greatest absolute declines in employment occurred in meat-packing (-4,800), fluid milk processing (-3,500), vegetable canning (-2,800), animal feed (-1,000), bread-baking (-1,100), and alcoholic beverages (-1,700). In addition to these six industries with decreases of more than 1,000 jobs, there were five other industries with *percentage* decreases of more than 50%: butter, ice cream, breakfast cereals, coffee, and pasta products.

In only one-fourth of Indiana's food industries were significant increases in employment noted for 1963-1982. These industries were processed meats, frozen foods, corn refining, pet foods, chocolate, soft-drinks bottling, flavorings, and miscellaneous foods.

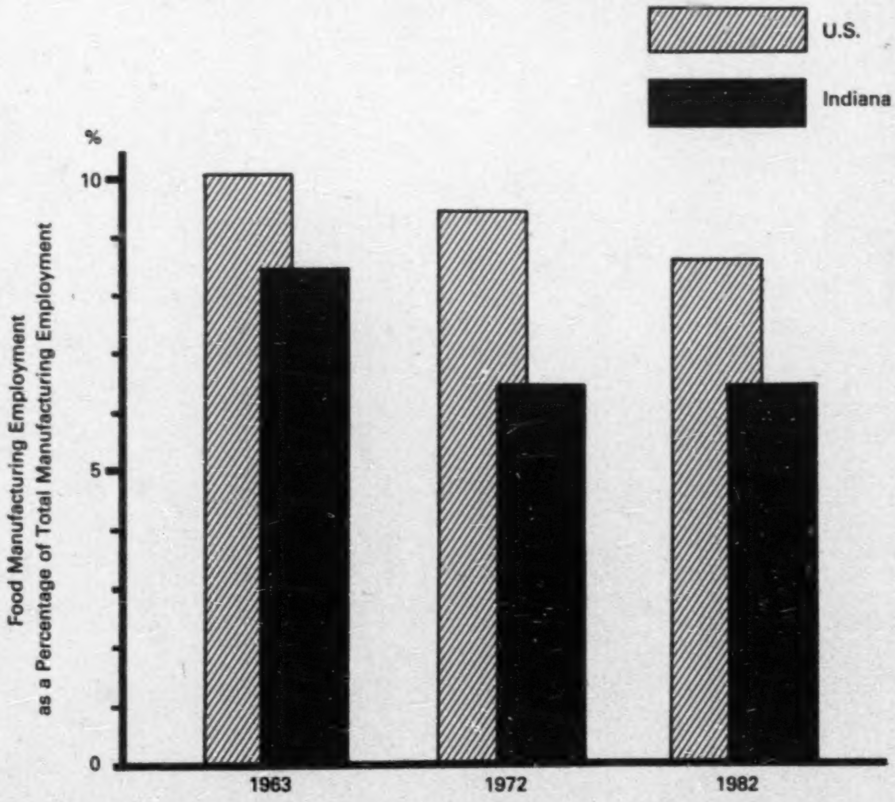
Food Manufacturing in Indiana: The Implications of Employment Trends

What are the implications of these overall employment trends? There are two possible standards against which to judge these trends. First, by comparing food manufacturing to all manufacturing, we can determine whether Indiana food manufacturing employment trends are due to a more general deindustrialization process. Second, by comparing the Indiana trends to parallel data at the national and regional levels, we can see whether Indiana's experience can be attributed to a change in the comparative economic advantage of the Great Lakes region.

Figure 3 demonstrates that, at the national level, food manufacturing employment is becoming a less important source of manufacturing employment. Two reasons for this trend are:

1. The slow growth in demand for food

Figure 3
Food Manufacturing Employment as a Percentage of Total Manufacturing Employment, 1963, 1972, and 1982



Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

relative to other manufactured goods; and 2. The relatively rapid labor productivity increases in food manufacturing.

For Indiana's economy, the importance of food manufacturing in the manufacturing sector was below the national average. Moreover, the drop in importance between 1963 and 1982 was steeper than in the U.S. generally.

Table 5
Indiana Food Manufacturing Industries with Extreme Real Growth Rates, 1963 to 1982

Industries with Above Average Growth	
Chocolate	(infinite)
Wine	(infinite)
Flavorings	21.2%
Prepared milk products	14.4%
Frozen foods	11.4%
Soft drinks bottling	6.8%
Wet corn milling	5.8%
Animal fats	5.7%
Misc. prepared foods	5.7%
Processed meats	3.5%
Cheese	3.4%
Bread and rolls	2.2%
Flour mixes	1.7%
Industries with Negative Real Growth	
Breakfast cereals	−13.4%
Ice cream	− 6.3%
Canned vegetables	− 5.7%
Coffee	− 4.0%
Meat-packing	− 4.0%
Pasta products	− 4.0%
Distilled liquor	− 3.9%
Butter	− 3.7%
Flour milling	− 2.8%
Pickles and sauces	− 1.5%
Beer	− 0.4%

Note: For the 13 industries not listed, real growth was 0% to 2% per year. The two industries with "infinite" growth rates had zero sales in 1963; that is, production in Indiana began after 1963.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Appendix Table 3.

Indiana's share of national employment in food processing has declined between each of the censuses since 1963. But between 1972 and 1982, Indiana held its own regionally. Thus, Indiana's deteriorating national position after 1972 appears to be attributable mainly to a decline in the comparative economic advantage of the five Great Lakes states (Illinois, Indiana, Michigan, Ohio, and Wisconsin). In short, since about 1972 the problem has been regionwide.

Sales Growth of Food Manufacturing in Indiana

Despite the gloomy picture presented by plant closings and job losses, output growth did occur in Indiana's food-processing industries. Total value of shipments of all food-manufacturing establishments located in Indiana rose from $2 billion in 1963 to $6.2 billion in 1983. Although sales measured in current dollars more than tripled in 19 years, growth adjusted for inflation was only 14% over the period. Real growth averaged 1.1% per year between 1963 and 1972, 1.8% per year between 1972 and 1977, and -1.7% per year between 1977 and 1982. (Because 1982 was a recession year, the last period may be unrepresentative.)

Growth rates varied considerably among Indiana's food-manufacturing industries between 1963 and 1982. **Table 5** lists those industries that had growth rates that were well above average or well below average. (The chocolate and wine industries show infinite growth because activity in Indiana began after 1963.) The remaining 13 industries had real growth rates that ranged from 0% to 2% per year—near the Indiana average. Real output in Indiana's food processing industries as a whole in 1985 has just about recovered to the level of the late 1970s.

Another encouraging trend in Indiana food processing is the changing mix in those industries over time. As **Table 6** documents, there was a significant shift toward the high value added industries listed in Table 3. Between 1963 and 1982, the proportion of Indiana food-manufacturing jobs in the high value added industries rose from 43% to 55% of total food-manufacturing jobs. On the basis of sales, the same trend is apparent. There was also a slight increase in moderate value added industries.

The Role of Food Manufacturing in the Indiana Economy

Food manufacturing occupies center stage in the food production-distribution system.

Table 6
The Mix of Food Manufacturing Industries in Indiana, by Degree of Value Added, 1963 and 1982

Degree of Value Added	*Number of Industries in State*		*Proportion of Employment (in percent)*		*Proportion of Value of Shipments (in percent)*	
	1963	*1982*	*1963*	*1982*	*1963*	*1982*
High	15	19	43	55	33	42
Moderate	6	8	15	16	13	20
Low	9	10	42	29	54	38
Total	**30**	**37**	**100**	**100**	**100**	**100**

Note: Definitions and lists of high, moderate, and low value added industries are shown in Table 3.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986), Appendix Tables 1, 4, and 5.

Farm production, assembly, processing, wholesaling, and retailing are intimately bound together through numerous vertical linkages. Products flow forward from the farm to U.S. consumers or foreign customers.

More than 90% of the value of marketed output of U.S. farms is *processed*, here or abroad. In 1982, 65% to 70% of the $4.5 billion in Indiana farm sales was purchased by U.S. food manufacturers. Another 25% to 30% of Indiana farm production was shipped abroad, almost all of it to be purchased by food processors in other countries. Only about 5% of the products of Indiana farms (mostly eggs and some fresh fruits and vegetables) reached U.S. consumers in a fresh, unprocessed form. More than 90% of the value of foods and beverages purchased by U.S. consumers is in processed products. In Indiana, 1982 retail food store sales totaled $8 billion.

In 1982 Indiana food manufacturers purchased about $1.9 billion worth of raw agricultural products from farmers. *At least* $1.1 billion (or 25%) of Indiana farm production in 1982 was shipped to food processors in other states; possibly as much as $2 billion (or 45%) of farm sales is "exported" in this manner. Data are not available to pin down this figure more precisely. (Of course out-of-state exports vary considerably across industries.)

> *About 50% of the sales receipts of Indiana food manufacturers are used in turn to purchase food materials, both raw and semiprocessed.*

In addition to raw farm products, Indiana food manufacturers also purchased about $1.25 billion in semiprocessed food inputs. Flour was bought for flour mixes or baking, sugar for candy, high-fructose corn syrup for soft drinks, bread for stuffing mixes. Some of these transactions—but probably only a minor portion—are intra-Indiana sales. In sum, about 50% of the sales receipts of Indiana food manufacturers are used in turn to purchase food materials, both raw and semiprocessed.

The next most important category of expenditures for Indiana food processors is labor. In 1982, the wages and salaries of Indiana food manufacturers amounted to $750 million, 12% of sales receipts. Wages in Indiana appear to be about 10% higher than the national average. Of course, nearly all of these wages are paid to Indiana residents.

Labor and food materials are the major costs of Indiana food processors, but there are many other categories of expenditures that stimulate the state's economy. **Table 7,** which is based on 1982 data mostly extrapolated from national data, shows how Indiana food processors spend their $6.2 billion in sales receipts.

Expenditures by food manufacturers for farm products, labor, packaging, transportation services, power, business services, taxes, and so forth benefit many other businesses as well as governments. These linkages imply strong "multiplier effects" for food manufacturing investments. A recent study of input-output relationships in Indiana concluded that **for every $1 million** additional output from the food-processing industries, on average, another **$2.7 million in sales were generated** in other Indiana sectors.[1] This compares with sales multipliers of only 1.9 for raw (unprocessed) agricultural output. Results like this reinforce the popular perception of manufacturing as an "engine" of economic growth which propels the surrounding economy.

Three Types of Food Industries

From a public policy and future planning standpoint, it is useful to distinguish three main types of food manufacturing industries.

1. **Oriented to local customer.** First, there are several food-manufacturing industries whose location is determined principally by consumer demand in Indiana and adjacent portions of bordering states. The decline of fluid milk bottling, bread-baking, and other such *local-market* or demand-oriented industries can be attributed mainly to the declining relative population and personal incomes in Indiana and nearby states.

Table 7
Expenditures of Indiana Food Processors, 1982 (in billions of dollars)

Agricultural products	$1.9
Semiprocessed foodstuffs	1.2
Wages and salaries	0.8
Plant and equipment costs	0.1
Packaging, chemicals, etc.	0.8
Contract work and resales	0.4
Energy and fuels	0.1
Central office expenses	0.6
Profit and taxes	0.3
Total	**$6.2**

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

Reversing the decline requires public policies that stimulate per capita income growth of the region. Alternatively, policy changes or new technologies might broaden the geographic markets for the products of the local market industries. For example, changing regulations to permit "filled" or reconstituted milk might benefit Indiana vegetable oil producers, and a soft-drink technology based on dry powders might stimulate the flavorings industry in Indiana.

2. **Oriented to local agricultural supply.** Second, several food-processing industries must locate in major agricultural production zones, either because their principal food ingredients are bulky (for example, corn, hogs, carcasses, soybeans) or perishable (tomatoes) or because farmers are their customers (feed manufacturing).

In the case of these *agriculturally-related* food-processing industries, the state can attract more capacity by:

- Lowering the relative *delivered* cost of agricultural products for processing, or
- Discovering new or expanded uses of farm products in which Indiana has an established comparative advantage.

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[1] Figures derived from data in Thomas W. Hertel and Lance McKinzie, "Input-Output Analysis for the Indiana Economy," *Indiana Business Review* 59 (July-August 1984): 10-16.

Policies that improve the efficiency and financial health of Indiana agriculture and that lower the cost of assembling and storing sufficient quantities of the right quality of agricultural commodities eventually will attract more food-processing capacity to the state. The losses in meat-packing, dairy processing, and tomato canning in Indiana stem in part from declining supplies of local raw materials.

On the other hand, Indiana's apparent comparative advantage in corn, hog, eggs, and poultry production may offer future opportunities that are, as yet, not fully exploited. Technology development also can influence these industries—for example, the impact of the immobilized enzyme technology on the use of corn for high-fructose corn syrup.

3. **Footloose/high value added.** Third, there are several industries in which a food manufacturer can serve a large region or the whole country equally efficiently whether its single plant is located in Detroit, Cincinnati, St. Louis, or Chicago. These industries typically make foods with *high values* relative to distribution costs—products like prepared flour mixes, confectionary, frozen foods, canned specialties, and the like. Neither the costs of delivery to customers nor the costs of acquiring sufficient agricultural input supplies appear to dominate the location decision. Therefore, these industries are *footloose*. Most of these are also *high value added* industries.

Table 8
Value Added Characteristics of Indiana's Food Manufacturing Industries, by Location Type, 1982

Value Added Characteristic	*Oriented to Local Customer*	*Oriented to Local Agricultural Supply*	*Footloose*
Number of industries	6	13	14
Value added per dollar of sales, average	$0.35	$0.28	$0.47
Value added per employee, average	$55,000	$59,000	$106,000

Data are simple averages of U.S. data.
Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

Table 9
Percentage Changes in Indiana's Food Manufacturing Industries, by Location Type, 1963 to 1982

Type of Change	*Oriented to Local Customer*	*Oriented to Local Agricultural Supply*	*Footloose*
No of businesses	− 60%	− 52%	+ 5%
No. of employees	− 34%	− 43%	− 2%
Sales growth	+236%	+153%	+335%

Source: John M. Connor, *Trends in Indiana's Food and Agricultural Marketing Industries, 1963-1982*, Purdue Agricultural Experiment Station Scientific Bulletin (W. Lafayette, Ind.: Purdue University, forthcoming 1986).

Implications for Public Policy

As **Table 8** shows, on average the footloose industries in Indiana were considerably higher in value added in 1982 than the other two locational types. Both value added per dollar of sales and value added per employee were significantly higher. However, these value added characteristics range widely within each locational type. Some of the local-demand (for example, bread and soft drinks) and agricultural-supply (for example, wet corn milling) industries have very desirable value added characteristics. Similarly, some of the footloose industries (for example, shortening and cooking oils) have quite low value added characteristics.

The ongoing state and regional economic development programs are likely to have the greatest impact on industrial location for these "footloose" industries. Infrastructure requirements, local taxes, regulatory burdens, and other factors amenable to state intervention will weigh heavily in the location decisions of investors. The effort often will be well repaid, for these are attractive industries, with relatively fast growth and above average export potential.

The historical changes in the three location types of food-manufacturing industries are shown in **Table 9.** Over the last two decades or so, the net number of businesses of the "footloose" type increased slightly. However, the number of plants in the other two categories declined substantially—by more than 50% in both cases.

Looking at employment and sales changes, the differences among the three location types widen. The footloose industries as a group retained their total employment levels and experienced substantial real growth. On the other hand, the other two types experienced substantial employment declines and negative real growth during 1963-1982, with the losses greater for the local-agricultural-supply type than for the local-customer-demand type. If historical trends persist, policies that tilt in favor of the footloose industries would appear

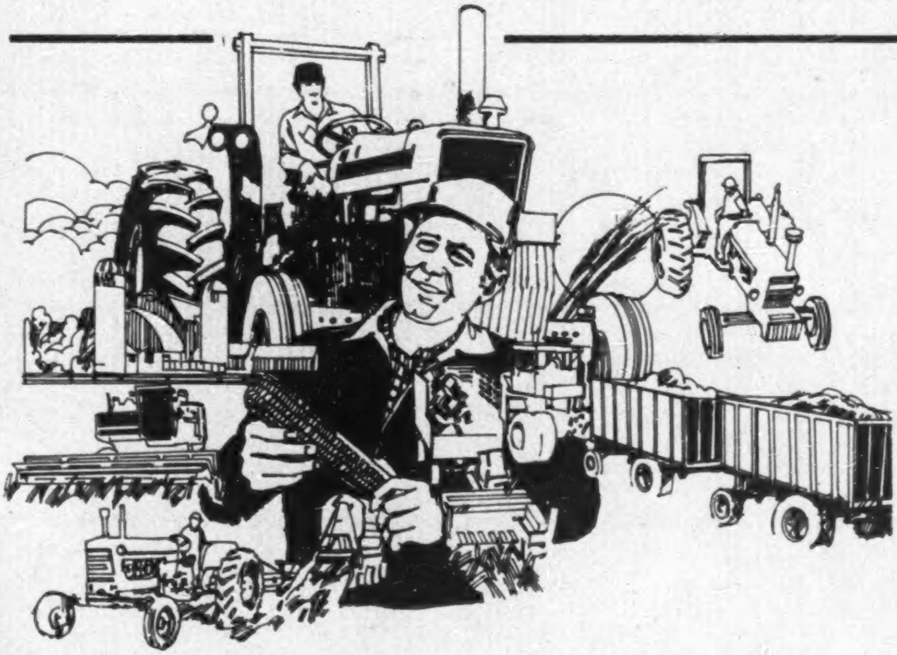

Figure 4
Policies to Influence the Location, Relocation, and Reinvestment Decisions of Food Processing Firms

Oriented to Local Customer	*Oriented to Local Agricultural Supply*	*Footloose or High Value Added*
1. Stimulate income growth.	1. Lower costs of agricultural production.	1. Target state economic development efforts.
2. Encourage population growth.	2. Lower costs of commodity assembly and storage.	2. Maintain infrastructure.
3. Encourage technologies to expand geographic size of market.	3. Improve grading standards.	3. Offer tax or financial incentives.
4. Support R&D in state on consumer food choice trends.	4. Develop agricultural varieties tailored for processing uses.	4. Reduce regulatory burdens.
	5. Develop new uses for state's agricultural products.	5. Improve schools, cultural resources, other "quality of life" factors important to managers.
	6. Support research that identifies present and future comparative advantages in production.	6. Support R&D in state for new food product development and marketing decision making.
	7. Support R&D in state for management of commodity procurement.	

to have the best chances of restoring economic health to Indiana's food-manufacturing industries. Some suggested policy options for all three kinds of industries are listed in **Figure 4.**

The research of universities or company-sponsored technical units located in or near Indiana can also attract food-manufacturing industries to the state. That research is of two main kinds: technical and economic.

Scientific and technical research might develop preservation or transportation methods to expand the geographic size of markets served by food processors. Examples include technologies to enhance shelf stability of bakery or dairy products or a flavoring powder that could be mixed with tap water to make soft drinks. Similar advances that would allow processors to obtain their food materials from more distant regions might also benefit the state.

The development of crop varieties or animal strains that can be processed more efficiently will benefit the state if Indiana is already a low-cost producer of the product.

Finally, new product development is a way of expanding the sales of food manufacturers. Typically, these activities are performed by the R&D units of manufacturers. To the extent that Indiana universities can cooperate in the solution of more basic scientific problems, their efforts will attract food processors to the state or assist processors in broadening their product lines.

But technical feasibility is only the first step in promoting the adoption of a new process or product form. Equally important is demonstrated profitability. *Economic and business research* can assist Indiana food manufacturers in several ways.

Identifying at an early stage changes in the needs, tastes, or geographic location of customers is helpful for food processors. This identification requires extensive knowledge not only of household demographics but also of grocery wholesalers, food retailers, and the large food service industry.

Programs to disseminate knowledge about export opportunities and large government contracts also need to be supported. Research on methods of agricultural commodity procurement, including the use of contracts and futures markets, will be of interest to most processors.

The development of computer-assisted "expert systems" software and the availability of executive education courses for commodity buyers might attract to the state processors concerned about the level of managerial expertise available locally.

Finally, food marketing research can assist processors in their market research and merchandising activities. Methods to evaluate test marketings of new products, to choose an efficient mix of selling techniques, or to measure the effectiveness of an advertising campaign are all of great interest to consumer-products manufacturers. Merchandisers often use surprisingly crude rules of thumb to arrive at decisions on these topics. The development of software for management games and simulators could make these decisions more informed.

True, many of these lessons from technical and economic research eventually will benefit manufacturers in other states. Patents will expire, and managers trained locally will move out of state. However, the five- or ten-year leads that advanced research can give to businesses are often crucial to conferring a leading market position in an industry undergoing changes in supply or demand conditions. Moreover, in-state expertise is necessary to monitor technical and economic advances developed in other regions so that they can be disseminated usefully and quickly to local manufacturers. Indeed, this keeping up with the state of the art may be in the end the more beneficial activity. Only researchers who are on the leading edge themselves can be expected to appreciate fully new developments that are potentially profitable to local food processors. ☐

Taxes in Indiana: Recent Changes and Anticipated Issues

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What are some of the major changes in Indiana's tax structure since 1972? What impact have these changes had on total tax collections? And what changes have occurred in the relative importance of each major tax? This article will address these important questions, briefly compare Indiana's tax situation with that of other states, and point out some major tax issues that lie ahead.

Major Changes in Indiana Taxes since 1972

Why begin in 1972? That year has been chosen as the historical base year for analysis of tax trends in Indiana because, in 1973, the General Assembly made the most sweeping changes in Indiana's tax structure in recent history. With the urging of newly elected Governor Otis Bowen, a property tax relief program was enacted that was to be substantial, visible, and lasting.

> *In 1973, the General Assembly made the most sweeping changes in Indiana's tax structure in recent history. With the urging of newly elected Governor Otis Bowen, a property tax relief program was enacted that was to be substantial, visible, and lasting.*

What were the major components of this tax program?

1. **Strong controls were placed on the rate of growth of future property taxes.** All local units of government, except local schools, had their tax rates for operating funds frozen. To meet future needs and inflationary costs, additional revenues had to come from increasing assessed value of taxable property. Historically, this meant an annual growth of about 4.5% to 5%.

Local schools, on the other hand, could not take advantage of increased assessed value because tax levies (the dollars collected from the property tax) were controlled. Increasing school enrollments did allow for additional property tax revenue, but otherwise all new money had to come from the state. For the most part, tax increases for capital funds were little affected by new legislation.

2. **The state agreed to pay for 20% of every taxpayer's property tax liability from a new state property tax relief fund.** Beginning in 1974, therefore, every taxpayer's property taxes were 20% lower than otherwise would have been the case.

3. **To fund the property tax relief fund, the state increased the state sales tax from two cents to four cents.** The new revenue was dedicated to reducing property taxes and to paying for a portion of the increased cost of local schools.

4. **The state's gross income tax on all regular corporations was scheduled to be phased out over a 20-year period.**

5. **A new supplemental net income tax of 3% on all corporations was adopted** to help offset the loss of revenue from the gross income tax phaseout.

6. **A new source of revenue for local governments, a county adjusted gross income tax (CAGIT), was authorized.** Adoption by the County Council was required. The county tax could be adopted at 1/4% increments up to a maximum of 1%. The revenue now must be used for property tax relief. Initially, if the tax was adopted at the full 1% rate, up to 25% could be divided proportionally, based on their total tax levy, among all local governments (except local schools).

Although the details of the 1973 tax program have been modified over the years, the basic elements are still in place. The most significant changes were made in 1984. A new county individual income tax was made available, new property levies were authorized for capital expenses, and all new cumulative capital and debt service funds were excluded from being eligible for the state's 20% replacement credits.

The new individual income tax, the county option income tax (COIT), may be adopted by the governing boards of local governmental units representing more than half of the population of the county. For example, if more than half of the county's population resides within the city limits of two of the cities in that county, together the two city councils can vote to impose the tax. Revenue may be used either to support increased expenditures and/or to reduce property taxes. The rate automatically increases in annual increments of .1% from .2% the first year to .6%. A second vote must be taken to exceed the .6% rate up to a maximum of 1%. This tax may be adopted only in counties that do not have CAGIT. If both are adopted in the same year, COIT takes precedence.

The 1979 legislature reduced the state individual income tax rate from 2% to 1.9%. It also provided for a one-year, 15% reduction in individual income taxes for 1979.

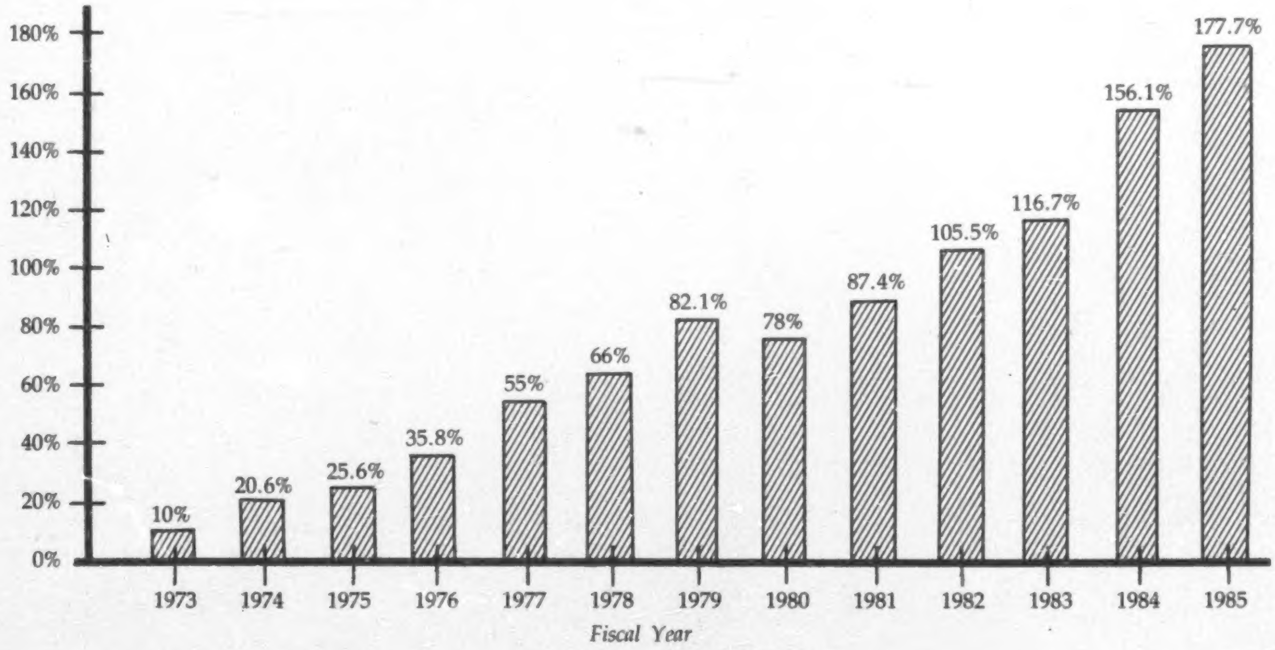
In 1985, the amount of individual income excluded from taxation was increased to substantially offset the impact of the 1982 increase on low-income taxpayers.

During a special session in December of 1982, the General Assembly enacted a one-cent increase in the state sales tax and an increase in the individual income tax rate from 1.9% to 3%. During the 1982 regular session, an increase in the supplemental net gross income tax on corporations from 3% to 4% was passed. The 1982 session also slowed by two years the phaseout of the gross income tax. This action had the effect of increasing the rate by 4%. In 1985, the amount of individual income excluded from taxation was increased to substantially offset the impact of the 1982 increase on low-income taxpayers.

Finally, in 1986 changes were made in the county adjusted gross income tax (CAGIT), which provided for increased revenue to fund local government budgets. The changes were made:

- To provide greater incentive to adopt the tax; and
- To replace anticipated loss of federal revenue-sharing funds.

Figure 1
Cumulative Percentage Change from 1972 in Indiana's Total Tax Revenue in Current Dollars: 1973 to 1985



Major Impact of Changes on Tax Structure

What has been the impact of these major changes over the past twelve years?

Growth in Tax Revenue. **Figure 1** shows the cumulative percentage gain in total state and local tax revenue from 1972 to 1985. By 1985, state and local governments had collected 178% more total tax revenue than in 1972. Some increase occurred each year with the exception of 1980. In 1980 tax collections actually declined by $92 million (2.2%) compared to 1979 collections.

However, when the impact of inflation on this growth is taken into account, a substantially different picture emerges. **Figure 2** reflects the inflation-adjusted tax collections in each fiscal year compared to 1972. This figure graphically depicts one of the major fiscal management problems faced by state government.

When combined with fluctuations in the inflation rate over the business cycle, fluctuations in the rate of growth in revenue make sound fiscal planning very difficult. Wide shifts in the rate of inflation and the pressures to maintain service levels have resulted in major gaps between expectations and the purchasing power of the revenue collected. The primary pressure from expectations is one of keeping salary levels for employees, including teachers in the state's local schools and higher education institutions, at least constant with respect to inflation.

The "stagflation" period of 1978 to 1981 produced a four-year period (1980-1983) when the purchasing power of total tax revenue actually fell short of 1972 by as much as 14%. Revenue growth began to fall behind the rate of inflation in 1979. A small

Figure 2
Cumulative Percentage Change from 1972 in Indiana's Total Tax Revenue Adjusted for Inflation: 1973 to 1985

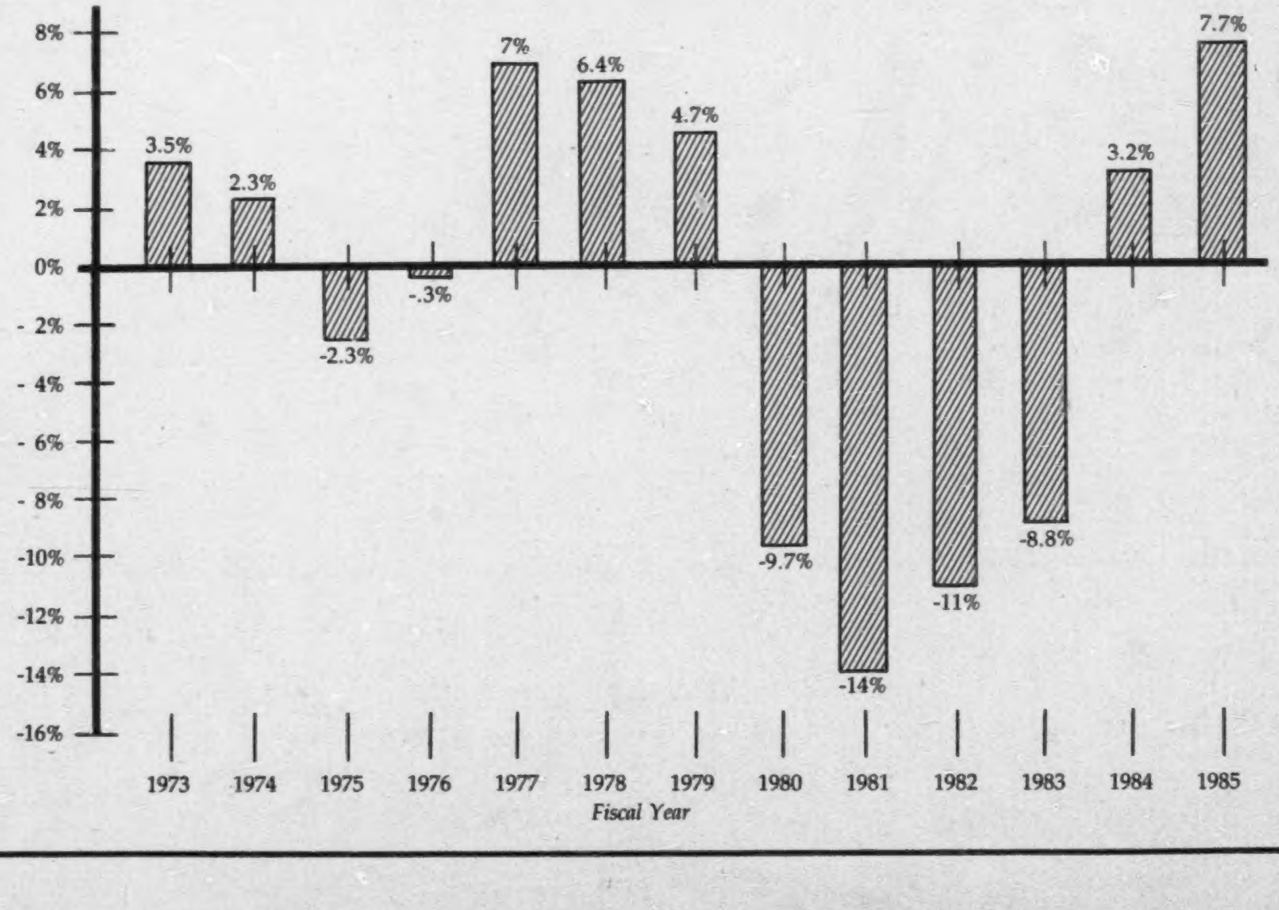


Figure 3
Cumulative Percentage Change from 1972 in Indiana's Property Tax Revenue in Current Dollars: 1973 to 1985

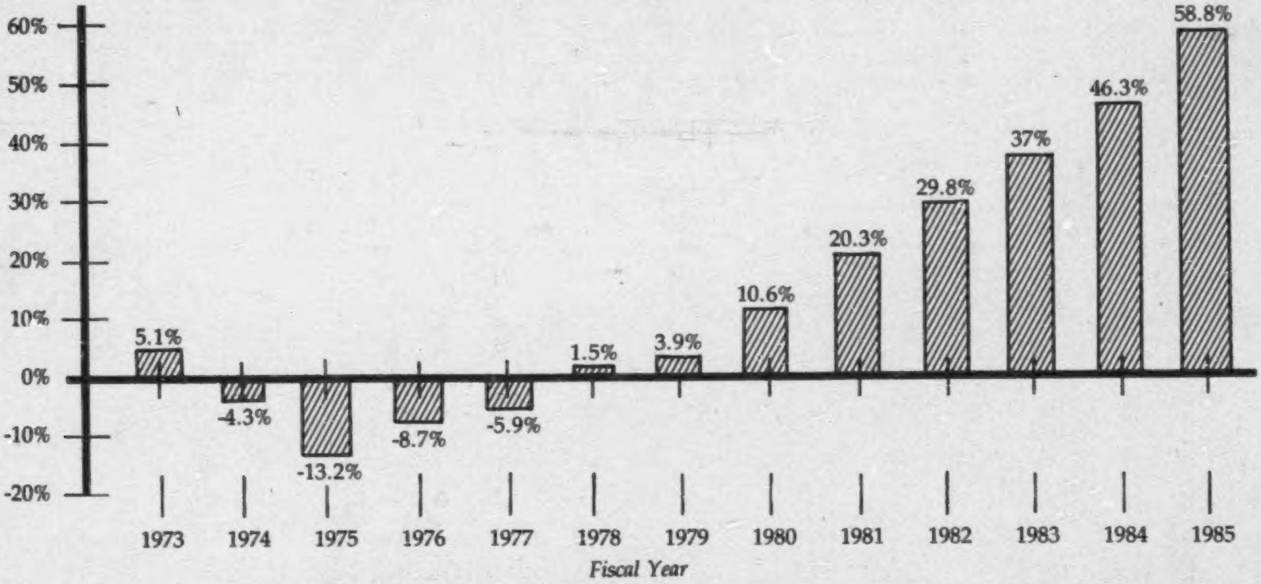
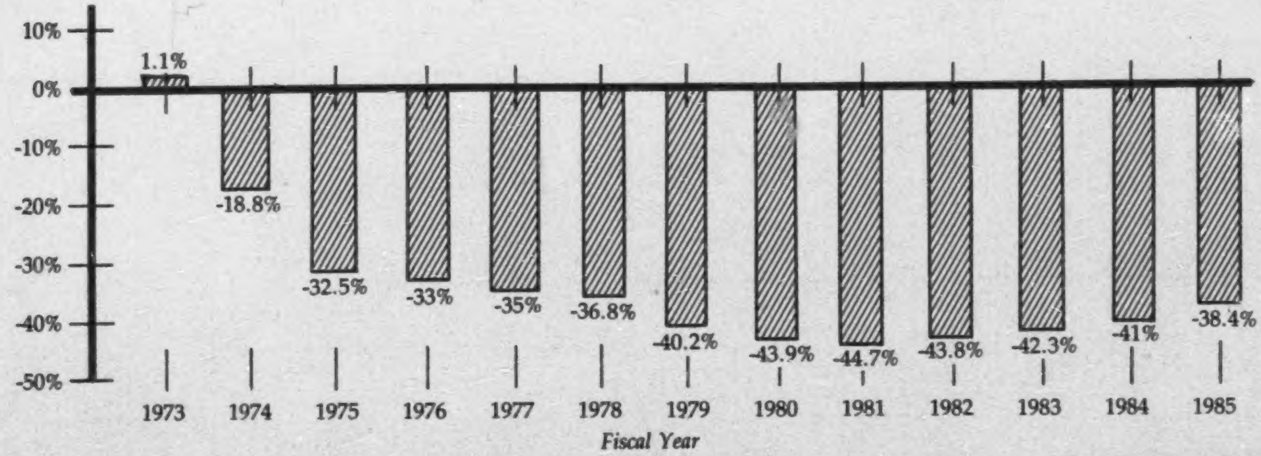


Figure 4
Cumulative Percentage Change from 1972 in Indiana's Property Tax Revenue Adjusted for Inflation: 1973 to 1985



fraction of the decline between the 1978 and 1979 fiscal years was due to the state income tax reduction. The major decline in 1980, a 13.7% drop, was the result of a very sluggish economy in 1979 and 1980 and very high inflation during that period.

By 1982, the revenue picture was beginning to reverse, but not rapidly enough to preclude the December 1982 state tax increase that resulted in boosting revenue back to the 1973 levels by 1984. By the end of 1985, the state was about 7.7% above 1972 levels and 4.2% above 1973 levels. A downturn in the economy and/or high inflation rates easily could turn this curve around once more.

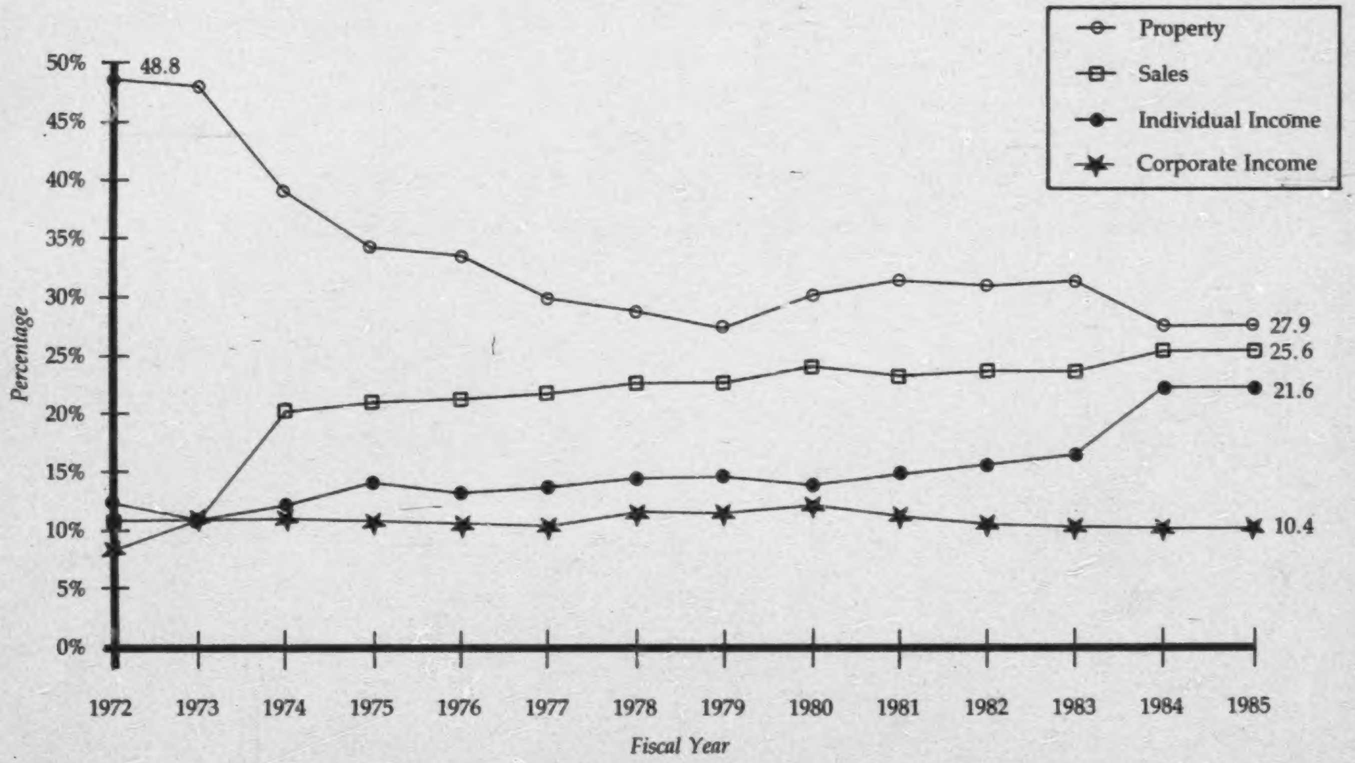
> *1985 collections—which were 59%* ***above*** *1972 levels unadjusted—were actually 39%* ***below*** *1972 levels when adjusted for inflation. In 1981 the purchasing power of the property taxes collected in Indiana reached a low of 44.7% below the 1972 level.*

The original intent of the 1973 changes was to reduce significantly the role of property taxes in financing state and local government. Did that program succeed? **Figure 3** depicts the nominal tax collections from the property tax during the 13-year period.

Following the 1973 tax package, a two-year decline in total collections brought the property tax down to 13% below the 1972 level and 18% below 1973. Following 1975, the total began to increase again. By 1985, it reached a level almost 60% above 1972 levels. However, as **Figure 4** shows, 1985 collections—which were 59% *above* 1972 levels unadjusted—were actually 39% *below* 1972 levels when adjusted for inflation. In 1981 the purchasing power of the property taxes collected in Indiana reached a low of 44.7% below the 1972 level.

Indiana's Tax Mix. **Figure 5** depicts the major shifts in the tax structure among the

Figure 5
Property, Sales, Individual Income, and Corporate Income Taxes as Percentages of Total Indiana State and Local Taxes 1972 to 1985



Note: Percentages do not add to 100% because only four major taxes are included.

four major sources of tax revenue during the period under consideration.

- In 1972, the **property tax** represented almost half (48.8%) of our total tax revenue. By 1985, it represented a little over one-fourth (27.9%) of the total.
- **State sales taxes** increased from about one-tenth to one-fourth (25.6%).
- **Individual income taxes,** including local income taxes, moved from about one-eighth (a little more than 12%) to a little less than one-fourth (21.6%).
- **Corporate income taxes** have increased slightly, from 8.5% to 10.5% of the total.
- **Interstate Comparisons.** How does Indiana's situation compare with surrounding states? Historically, tax burdens in Indiana have been low compared to other states, especially when measured as a percentage of personal income. During the 1972 to 1982 period the percentage declined from 10.5% to 8.5% (see **Table 1**). Personal incomes grew faster than taxes. During this period Indiana's level of taxation also declined further than the level in surrounding states.

Between 1982 and 1984, state and local taxes have trended upward again in most states. According to U.S. Bureau of Census estimates, by 1984 Indiana taxes represented the same proportion of personal income as in 1972—10.5%. Comparable data for other states show the same trend. However, of the other states, only Michigan and Ohio are back up to or above their 1972

Table 1
The Burdens of State and Local Taxes 1972-1984: Comparing Indiana with Adjacent States and with the U.S.

	Taxes per Capita				'82-'84	Taxes per $1000 Personal Income				'82-'84
	1972	1977	1982	1984*	Percent Change	1972	1977	1982	1984*	Percent Change
TOTAL										
Indiana	431	656	857	1093	27.5	105	101	85	105	23.5
U.S.	526	813	1176	1356	15.3	128	128	111	117	5.4
Illinois	580	859	1197	1405	17.3	122	117	103	113	9.7
Kentucky	354	599	857	955	11.4	108	113	102	102	—
Michigan	578	873	1234	1575	27.6	132	130	115	138	20.0
Ohio	423	634	970	1246	28.4	102	99	94	111	18.0
PROPERTY										
Indiana	211	194	264			51	30	27		
U.S.	206	289	362			50	46	34		
Illinois	242	316	427			51	43	37		
Kentucky	74	113	152			23	21	18		
Michigan	231	327	525			53	49	49		
Ohio	185	239	326			44	37	32		
*SALES***										
Indiana	109	195	259			25	28	26		
U.S.	160	242	348			35	34	31		
Illinois	177	269	326			35	33	27		
Kentucky	167	242	310			46	40	35		
Michigan	173	237	283			36	31	26		
Ohio	141	199	306			31	28	29		
*INCOME****										
Indiana	90	168	248			22	26	25		
U.S.	84	160	263			18	23	23		
Illinois	90	160	257			18	20	21		
Kentucky	64	135	210			18	23	23		
Michigan	112	247	332			23	33	31		
Ohio	23	87	166			5	12	16		

* State Policy Research, Inc., State Policy Reports, December 1985.

** State only.

*** Individual and corporate.

Source except where otherwise noted: U.S. Bureau of the Census, *Census of Governments 1982*, Vol. 6, No. 4, "Historical Statistics on Government Finances and Employment." Indiana totals adjusted to conform to state figures level. Indiana's overall tax level, however, is still lower than all surrounding states except Kentucky. In 1984 Indiana ranked thirty-ninth among all states when taxes were measured as a percentage of personal income. In other words, 38 states had tax levies that were higher than Indiana's.

In 1984 Indiana ranked thirty-ninth among all states when taxes were measured as a percentage of personal income. In other words, 38 states had tax levies that were higher than Indiana's.

Anticipated Issues

Because of continuing apprehension concerning the structural changes in the economy and the future employment base, Indiana probably will continue to focus a great deal of attention on the impact of state policies on the future of the state's economy. A subset of this general concern is the impact of state and local tax structure on Indiana's relative competitive position for expanding investments and job opportunities. This issue will continue to capture the public's attention and be debated by policymakers.

An increasing accumulation of evidence suggests that state and local taxation can have a significant impact on the location of new investments and new jobs, especially among states within a region. Competition among states for new investments has become fierce. At the same time legitimate questions are being raised concerning the appropriate role of the state in attracting outside investments and in supporting the expansion of existing companies.

A major area of concern in Indiana is the overall level of taxation of the business community. Most attention within this area is focused on:

- The future of the state's gross tax on corporations; and
- The level of property taxation.

The role of personal property, especially the property tax on inventories, is a key issue. With passage of SB482 by the 1986 legislature, the state took another step in effectively eliminating more finished goods from the property tax.

The last several years have seen the expansion of various property tax abatement programs that have significantly lowered tax liabilities from new investments. Questions are being raised about the effectiveness and efficiency of these approaches to influencing the level and location of investment decisions.

Aside from these business tax issues, the role that property taxes play in financing state and local governments will continue to be an item on the state's agenda. With reassessment scheduled to be completed for 1989 taxes that are payable in 1990 and with the increase in property taxes that likely will take place in the interim, there will be pressure to review the current controls and/or to replace some of the property tax with an alternative. A specific proposal to initiate a local income tax for schools already has surfaced. With the anticipated shift that will occur due to reassessment of real property, proposals to increase the homestead credit are also likely to surface once more.

One of the major pressures faced by local units of government continues to be funding for capital expenditures. Many areas experience scarce revenues to maintain existing roads, streets, sewage and storm drainage systems, buildings, and so forth. State and federal environmental groups will continue to exert pressure for financial assistance to help meet these imposed standards.

Problems with the funding and administration of township poor relief, hospital care for the indigent, and welfare programs will have significant impact on the discussion of the future role of the property tax. The 1986 legislative session dealt with these issues, but the eventual fiscal impact of its decisions remains to be fully appreciated.

Education funding, which represents well over half of the state budget, will continue to be debated. People seem to be realizing that real increases in expenditures for primary and secondary education, as well as higher education, will be necessary if Indiana is to provide the quality of education necessary for its citizens to compete favorably in future job markets. There seems to be public concern that, if additional funding is made available, it should not simply mean a higher cost of providing the same level of education but that the new money should make a perceptible difference in the quality of education provided. A consensus seems to be developing that quality education at all levels, including higher education, and a qualified work force will be closely linked to the future expansion of Indiana's employment base.

If taxes are not increased, the stage will be set for very difficult priority-setting budget processes for both state and local governments in the near future.

Finally, if the U.S. Congress significantly reduces federal funding for domestic programs, there will be tremendous pressures to replace those lost funds with state or local revenues. A broad range of programs could be affected: highway funding, waste water treatment grants, community development block grants, welfare, programs for aging, community services, education, employment, research, economic development, health, environment, and energy, to name only the most obvious. Depending upon the extent of reductions, replacing a significant portion of these cuts is not likely to be possible without tax increases at the state and local level. If taxes are not increased, the stage will be set for very difficult priority-setting budget processes for both state and local governments in the near future. ☐

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The National Outlook

Bruce L. Jaffee — GNP, Inflation, and Interest Rates: Will They All Creep Up in 1986? / 2
R. Jeffery Green — The Investment Outlook at Midyear: Mixed Signals / 3
Lawrence S. Davidson — Monetary and Fiscal Policy: Little Change for 1986 / 3
George Lentz — 1986: A Boom Year for Housing, But Not for Other Real Estate / 4
Joseph C. Miller — Net Exports: Continued Improvement / 5

The Indiana Outlook

Richard L. Pfister — A Midyear Review of the 1986 Indiana Forecast: Some Weakening / 6
Robert Kirk — Indianapolis / 6
Thomas L. Guthrie — Fort Wayne / 9
Ashton I. Veramallay — Richmond / 9
John E. Peck — South Bend/Mishawaka—Elkhart/Goshen / 10
Robert R. Jost — Muncie/Anderson / 12
Marvin Fischbaum — Terre Haute / 14
William C. Dunkelberg — Lafayette / 15
Fay Ross Greckel — Jeffersonville—New Albany (Louisville Area) / 16
Maurice Tsai — Evansville / 16
Leslie P. Singer — Gary—Hammond—East Chicago (Calumet Area) / 18

In this issue . . .

In this midyear outlook for the economy, we reflect upon last fall's forecast, which was published in the November-December issue of the *Indiana Business Review*. Several faculty members in the Indiana University School of Business were asked to update their forecasts and to take a look at their predictions for 1986 in light of the events that occurred in the first four months of the year.

The reviews do not update all sectors of the economy comprehensively. Rather, they focus on areas that either have undergone significant changes since our last forecast or, we believe, will be of special interest to *IBR* readers.

Reports from several key areas around the state show how events within the last six months have affected regional economic trends.

Bruce L. Jaffee

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GNP, Inflation, and Interest Rates: Will They All Creep Up in 1986?

Bruce L. Jaffee

Associate Professor of Business Economics and Public Policy, Indiana University, Bloomington

In the last six months we have:

- Experienced a rapid boom in both the bond and stock markets;
- Seen an approximately 50% decrease in crude petroleum prices;
- Experienced several months of flat and even negative consumer price changes;
- Witnessed continued sharp declines in the value of the dollar; and
- Seen an increased likelihood that some form of tax reform—though not tax simplification—will be enacted before the end of the year.

On balance, we believe that these changes will be good for the economy and that they are likely to increase expected growth rates in both 1986 and 1987.

The most dramatic effect has been the decrease in petroleum prices. For the rest of this year we expect that spot prices for petroleum will fluctuate around $15 per barrel. The immediate impact of the price decline is somewhat negative in terms of economic growth. The energy-producing sectors in the economy have slashed their expenditures and have cancelled investments because of decreased revenues and profits. However, because on balance the U.S. is a net importer of petroleum, the benefits of lower prices will exceed the costs for virtually all of the nation except the Southwest. Real GNP growth is likely to be in the 4% to 5% annual range for the 12-month period beginning in the second quarter of 1986.

Decreases in interest rates and declines in energy prices have been important factors leading to low inflation during the first five months of 1986. However, we expect that the inflation rate will increase in the latter half of 1986.

Decreases in interest rates and declines in energy prices have been important factors leading to low inflation during the first five months of 1986. However, we expect that the inflation rate will increase in the latter half of 1986 and into 1987 because:

- We see no significant further decreases in either of these variables;
- Government policy is still mildly expansionary;
- Foreign competition for American businesses has been reduced because of weaknesses in the value of the dollar; and
- The economy is moving closer to capacity.

By the end of the year it is likely that consumer prices will rise at about a 5% annual rate. One point has been frequently overlooked: in many parts of the economy, such as the service sector, in the last twelve months inflation has continued to rise in the 5% to 8% range.

In many parts of the economy, such as the service sector, in the last twelve months inflation has continued to rise in the 5% to 8% range.

A further boost to the economy is likely to occur from continued growth in personal consumption expenditures and the strong demand for single-family housing. The rallies in the bond and stock markets are likely to have positive wealth effects. Low inflation through the first five months of this year has meant that real incomes for most households have increased. Tax reform is almost certain to lead to decreases in personal income taxes and therefore increases in disposable income.

Although it is extremely risky to predict the stock and bond markets, we nonetheless will describe general trends. We predict, at best, only moderate increases in stock prices for the rest of this year. For most sectors the likely good news for corporate earnings in the last half of the year is counteracted by somewhat higher rates of inflation and interest rates. We also think that interest rate declines are at or near their lowest levels. As the economy heats up in the latter half of the year, we would expect to see modest increases in both short- and long-term rates. A prime rate below 8% is very unlikely.

The weak areas of the economy are likely to be the farm sector, energy markets, and banks that have extensive loans to those less developed countries that are oil producers, such as Venezuela, Indonesia, and Mexico. Fortunately this last category excludes most Indiana financial institutions. □

The Investment Outlook at Midyear: Mixed Signals

R. Jeffery Green

Professor of Economics, Indiana University, Bloomington

At the end of 1985 we forecast growth of constant dollar investment expenditures of about 4% in 1986, with residential investment and inventory investment being the strongest components. Figures released during the spring reinforce the notion that residential investment spending and inventory investment will be strong in 1986, but they also indicate that plant and equipment spending is likely to be weaker than we predicted in December.

Residential investment spending and inventory investment will be strong in 1986.

According to a survey conducted by the Department of Commerce from January to March, firms expected to reduce their spending for plant and equipment in early 1986 and to increase spending slowly only later in the year. The weakness appears to be concentrated in manufacturing and mining. The decline in investment in mining is a result of the sharp decline in oil prices, which has brought new drilling and exploration for oil to a virtual standstill. Outside manufacturing, investment spending by public utilities is expected to show little or no growth because of ample capacity. Only investment in the commercial sector shows significant planned increases, and that is a little surprising given the vacancy rates for commercial real estate in some parts of the country.

The data for the GNP accounts, released in late April, indicated that constant dollar expenditures for business equipment fell at a rate of almost 18% in the first quarter. Constant dollar expenditures for structures fell at an annual rate of more than 5% in the same period. Investment spending for plant and equipment is clearly off to a bad start in 1986. However, the first quarter was heavily influenced by the negative developments in the petroleum sector, and we expect some improvement over the rest of the year. Even so, it is unlikely that plant and equipment spending in constant dollars will be any greater at the end of 1986 than it was at the end of 1985.

If plant and equipment spending has been a disappointment so far in 1986, residential investment has surpassed expectations. Constant dollar investment in residential structures increased at an annual rate of almost 10% in the first quarter of 1986. Housing starts have been near a level of two million at an annual rate. Because this level is already quite high, further improvement will be difficult. However, because of continuing income growth and reasonably low interest rates, housing starts are expected to remain high. Residential construction is expected to grow about 7% from the end of 1985 to the end of 1986, which is slightly above the 5% to 6% growth forecast last December.

Inventories rose sharply in the first quarter of 1986. We had expected some additions to inventories but not nearly what was observed in the first quarter. The increase was concentrated in the automobile sector, where inventory stocks are now viewed as excessive.

The inventory/sales ratio in the auto sector is now higher than at any time since the end of the last recession in late 1982. The industry was expecting better sales in the first quarter, and so the increase in auto inventories was largely involuntary. As the industry works off unwanted stocks, we expect inventory accumulation to slow through the remainder of the year and actually to turn negative for automobiles over the next few quarters. For the year 1986 as a whole, inventory accumulation will be substantial and hence contribute to overall growth; however, most of that growth will be concentrated in the first quarter of the year.

In December we forecast a rise in total constant dollar investment expenditures of about 4%. It now seems likely that growth will be between 3.5% and 4%. More significantly, virtually all of this growth will come in the form of residential investment and inventory investment, with little if any improvement coming from business expenditures for plant and equipment. □

Monetary and Fiscal Policy: Little Change for 1986

Lawrence S. Davidson

Associate Professor of Business Economics and Public Policy, Indiana University, Bloomington

Last fall we predicted that the Federal Reserve probably would start to slow the growth rate of the money supply in 1986 and that we would see little impact from any changes in government policy. Reviewing events in the spring, we see little to change our forecast. If the outlook has changed, it has little to do with policies from Washington.

After growing at an annual rate of around 12% during 1985, the money supply has slowed to an annual rate of around 7%

After growing at an annual rate of around 12% during 1985, the money supply has slowed to an annual rate of around 7% in the first quarter of 1986.

in the first quarter of 1986. With inflation and interest rates dropping like a couple of rocks, with increased prospects of fast economic growth for the economy during the second half of 1986, and with a growing fear that the dollar might fall too much, there is less pressure on the Fed to accelerate money growth. In fact, these conditions may induce the Fed to come in on target in 1986, with money growth under its 8% target ceiling.

It appears that changes in the budget acts of 1985 and 1986 and reductions in interest rates will help us reach the 1987 goal without draconian cuts in spending or large tax increases.

The improved economic outlook is also removing some of the worry caused by the passage of the Gramm-Rudman-Hollings Act. Although the government found it relatively easy to meet the deficit limit for fiscal year 1986, there was some nervousness among analysts that meeting the 1987 goal of $144 billion would lead to drastic changes in the budget. It appears now, however, that changes in the budget acts of 1985 and 1986 and reductions in interest rates will help us reach the 1987 goal without draconian cuts in spending or large tax increases. With this news and the likely resolution of the tax reform issue, it appears that the impact of the government sector on the economic outlook for 1986 is unchanged from our forecast last fall. When the Supreme Court has dealt with Gramm-Rudman-Hollings and when Congress has resolved the tax reform issues, we can be more certain of the impacts of those policies, but their effects on the U.S. economy will not be of much significance until 1987. ☐

1986: A Boom Year for Housing, But Not for Other Real Estate

George Lentz

Assistant Professor of Finance and Real Estate, Indiana University, Indianapolis

Since our last forecast, the decline of mortgage interest rates has been much greater than anticipated. At the time of last fall's forecast, mortgage rates for conventional fixed-rate mortgages averaged 12.07% nationally. For the week ending May 3, rates for the 30-year conventional fixed-rate mortgage had fallen to a national average of about 9.9%. Mortgage rates for the increasingly popular 15-year fixed-rate mortgage are typically one-quarter to one-half percent lower. The initial rate for an adjustable rate mortgage averaged 8.65%. Mortgage rates have not been this low since 1978.

The decline in mortgage rates has increased the affordability of home ownership. In December 1985 the National Association of Realtors Housing Affordability Index reached 100 for the first time since December 1978. The index stood above 100 in January and February, but then dipped slightly below 100 (to 99.6) in March. An affordability index of 100 means that a household earning the median household income can qualify for a mortgage loan covering 80% of the cost of a median-priced existing home. The decline in the value of the March index occurred because housing prices increased more than the median income level.

Single-Family Housing

The increase in housing affordability occasioned by the sharp and largely unanticipated drop in mortgage rates has generated a big increase in single-family housing activity. The U.S. Commerce Department estimated that sales of new single-family homes jumped 27.4% in March from February's sales rate. Sales in March were estimated to be at a seasonally adjusted annual rate of approximately 900,000. New home sales in January and February were slightly above 700,000 each month. March's sales volume was the highest for new homes in the 23 years that the Commerce Department has been keeping track of new-home sales activity. Moreover, March's brisk sales activity, coupled with attempts by builders to keep the number of homes kept in inventory within manageable limits, meant that the builders' inventory of unsold homes was at its lowest level since 1971.

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For the past three years, housing prices have fluctuated month to month, but generally they have increased by less than the inflation rate. Now, however, we are beginning to see signs that the increased sales activity in existing as well as new homes is beginning to exert upward pressure on prices.

The price of a median-priced existing house in March increased 3.4% over the February price (from an estimated $77,500 in February to about $80,000 in March). The median price of existing homes rose only 2.5% for all of 1985 (from $73,800 to $75,500). The average price of a new home was $102,400 in January, $106,600 in February, and $108,200 in March, and preliminary figures for April indicate an average price in excess of $112,000.

The sharp decline in mortgage rates has also brought about an avalanche of refinancings. The mortgage origination activity, including both refinancings and home sales, is at the highest rate ever, and the sheer volume has strained the entire mortgage financing system tremendously. The refinancing activity should provide a large boost to the economy, however, as lower mortgage payments improve the purchasing power of the average home owner.

Our revised forecast is that 1986 should be a great year for single-family housing. Mortgage rates can be expected to fluctuate somewhat during the remainder of the year, but basic forces in the economy indicate still lower rates this year. However, the precise level of mortgage rates is difficult to predict. Nonetheless, we are now forecasting that rates for a 30-year fixed-rate mortgage will fall to 9-9.5% before the year's end.

Mortgage rates can be expected to fluctuate somewhat during the remainder of the year, but basic forces in the economy indicate still lower rates this year.

In response to lower mortgage rates, housing starts for the year should reach the highest level of the 1980s. We are now forecasting housing starts for 1986 to be in the 1.9-2 million range. Two million housing starts is generally considered a housing boom. The last time that housing starts exceeded two million for an entire year was 1978. The proportion of housing starts that are single-family dwellings should rise, whereas the proportion of these starts that are apartments and condominiums should fall (except perhaps in the Northeast).

The main fly in the ointment for single-family housing is the possibility of sharply rising home prices. If housing prices increase too rapidly, they can negate the increase in affordability due to falling interest rates, and thus dampen housing sales and construction.

Multi-Unit Housing

1985 was a good year for multi-unit residential construction. In fact, 1985 saw apartment starts at their highest level since 1973. A major factor in the high level of apartment starts was a rush to take advantage of tax-exempt financing and the lucrative depreciation tax benefits provided under current tax law before these were eliminated or curtailed by tax reform legislation.

1986, however, probably will not be as good a year for either apartment or condominium construction (except, perhaps, in the Northeast). The sharp increase in housing affordability makes both forms of housing less attractive alternatives to single-family home ownership. Moreover, in many areas of the country, especially in the oil and sun belts, both apartments and condominiums have been overbuilt, resulting in an oversupply. In addition, the impact of proposed tax legislation that has emerged from the Congress to date is likely to dampen investor enthusiasm for apartment buildings.

The Tax Picture

The tax picture remains unclear at this time, although some form of major tax reform legislation appears increasingly likely this year. Home ownership will be little affected by any tax reform legislation. It seems virtually certain that mortgage interest and property taxes will remain deductible for first and second homes. However, if tax rates are cut as proposed, the value of those deductions will diminish.

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On the other hand, it now seems that other forms of real estate, including apartments, will be adversely affected by tax reform legislation. There is widespread sentiment in Congress to "go after" tax shelters. It is also very likely that depreciation for real estate will be spread over a considerably longer time period than under current law and thereby diminished in value. These increasingly likely tax law changes, coupled with the proposed reduction in tax rates, should diminish the attractiveness of real estate investments. One possible impact of these measures is that investors may require higher rents and/or reduced unit purchase prices in order to make up for the loss of tax benefits.

Nonresidential Real Estate

Our forecast for nonresidential real estate is not so optimistic as that for housing. In many areas of the country, especially in the Southwest, there has been a tremendous overbuilding of office buildings. Furthermore, demand for office space should be adversely affected by efforts on the part of U.S. firms to cut costs by reducing their white-collar labor force. The boom in office building construction peaked in the spring of 1985. F. W. Dodge reports a sharp decline in office building starts for the first quarter of 1986, and office construction starts for the remainder of the year should be well below that of the peak years of the 1980s.

Industrial construction is also in decline, due in part to the decline in oil prices and the adverse impact that this has had on the oil and gas sectors of the economy. But the general sluggishness in the manufacturing sector of the economy is also a factor. Industrial construction could increase later in the year if the savings from lower energy prices and lower interest rates can stimulate investment in plant and equipment. Retail construction should benefit somewhat from the increased residential activity. However, there is a great deal of retail floor space currently on the market; therefore, a large amount of new construction is unlikely. ☐

Net Exports: Continued Improvement

Joseph C. Miller

Professor of Marketing, Indiana University, Bloomington

In December we predicted that the dollar would decline by 30%-35% of its peak February 1985 value against the Japanese yen and West German mark before leveling out in the second quarter of 1986. In fact, by the end of April the dollar had decreased by 33% of its February 1985 value against the mark and by 34% against the yen. Also, there was some leveling out apparent in late April and early May, but a trend is not yet definite.

Some of the expected benefits of the dollar's decline are beginning to be seen. As the relative prices of U.S. exports fall and import prices rise, U.S. companies that export goods or services become more competitive in world markets and there is less pressure by importers in the U.S. market. Exports have indeed increased in 1986, and there are reports that many U.S. firms are enjoying significant gains in export orders. These reports foretell an acceleration in rising exports for the rest of the year.

> *Exports have indeed increased in 1986, and there are reports that many U.S. firms are enjoying significant gains in export orders.*

However, U.S. imports have been slower to respond to the dollar's decline. The result is that imports continue to rise faster than exports and the U.S. international trade deficit persists. Part of the reason for the slow adjustment is that some U.S. buyers, at least for the time being, apparently are willing to pay the higher prices for high-quality imports. Another part of the explanation is that importers are absorbing the price increase, where buyers are more price sensitive, in order to maintain their sales volumes.

> *Imports continue to rise faster than exports and the U.S. international trade deficit persists.*

Our forecast for the second half of 1986 is that imports will begin to decline as exports rise. As a result, the U.S. trade deficit will diminish. The dollar will stabilize, easing pressures on the Federal Reserve to push up interest rates as a means of protecting the dollar. ☐

A Midyear Review of the 1986 Indiana Forecast: Some Weakening

Richard L. Pfister

Professor of Applied Urban Economics, Indiana University, Bloomington

The U.S. economy grew more slowly in the first half of 1986 than we had forecast last November. As a result, the growth of personal income in Indiana will not be quite so strong as we expected. We had earlier forecast a growth of about 3% in real personal income between 1985:4 and 1986:4. It now appears that the increase will be only about half that amount. Total establishment employment, however, is expected to increase a little more than our earlier forecast—2.3% versus the earlier 2%.

> *The bulk of the employment growth will be in nonmanufacturing. Employment in manufacturing will continue to be sluggish.*

The bulk of the employment growth will be in nonmanufacturing. Employment in manufacturing will continue to be sluggish. Declines in auto and steel employment will cause durable goods employment to drop a little, but nondurables will grow enough to yield a slight increase overall for manufacturing. In nonmanufacturing, the major employment increases will be in retail trade, construction, and services. Because wages are substantially lower in trade and services than they are in manufacturing, the growth in personal income is considerably less than the growth in overall employment.

The state's unemployment rate has been declining steadily; it was down to 6.9% in February, below the U.S. rate of 7.3%. The Indiana unemployment rate is expected to continue to decline slowly in the remaining months of 1986. This drop is the result of a slowdown in the growth of the labor force in conjunction with slow but steady growth in employment. We tend to be disappointed that our recovery is not more vigorous, but we are much better off now than in 1983, when Indiana's unemployment rate was more than 12%.

During the twelve quarters of recovery from the last recession, Indiana experienced a 12.3% growth in employment, which was slightly above the growth rate for the U.S. Indiana's growth rate for real personal income over these twelve quarters (13.4%) was about two percentage points less than the U.S. rate. The unemployment rate at the trough of the last recession was higher in the state than the national average, so the rate has declined more rapidly in Indiana. In the early part of this recovery, Indiana's growth rate was above the nation's. In more recent months, the nation has outpaced Indiana. ☐

Indianapolis

Robert Kirk

Professor of Economics, Indiana University-Purdue University at Indianapolis, with data assistance from Ron Martin, Indiana Employment Security Division

The forecast for the second half of 1986 begins by focusing on the role of inventory change. In 1985, spending by consumers was stronger than output because imports satisfied a large part of the demand. The result was a slowdown in inventory accumulation. Higher economic growth in 1986 is expected nationally because restocking of inventories is expected to take place. The question is: Will Indianapolis firms experience the same degree of inventory restocking?

The forecast calls for moderate employment growth (3% annual rate) because a major cyclical industry, the transportation equipment industry (auto parts, diesel engines, and transmissions), appears to have adequate inventories, or can meet the need for additional inventories without additional employment. On the other hand, leading economic indicators derived from labor markets (such as hours worked in manufacturing and new unemployment insurance claims) for the Indianapolis metropolitan area show no indication of downturn.

The automobile industry, particularly at the small-car end of the market, is becoming like the oil industry in possessing excess world capacity. Although the fall in the dollar relative to the yen has made domestic auto prices relatively more attractive, the foreign auto import share has increased. Factors other than price, such as quality and design, continue to influence the consumers' choice.

A Mixed Picture

The forecast of moderate expansion is based on a mixed picture—optimism from some sectors, but caution from others. **Table 1** provides a comparative analysis of employment change, 1984(I) to 1985(IV), for Indianapolis and competing metropolitan areas. This time period was chosen because it was the most recent period for which a set of consistent definitions of metropolitan areas exists.

Table 1
Comparative Analysis of Employment Change, 1984I-1985IV, by Competing Metropolitan Area and by Major Sector (seasonally adjusted establishment employment)

Area	*Total (% change)*	*Mfg. (% change)*	*Nonmfg. (% change)*
Columbus, Ohio	10.1	5.2	11.2
Detroit	9.2	7.1	10.0
Cincinnati	7.8	2.1	9.6
Chicago	7.0	−3.6	10.0
Louisville	7.0	−2.2	9.7
INDIANAPOLIS	**6.8**	**−3.3**	**9.5**
St. Louis	4.6	−1.0	6.2

The table shows a wide range of change in manufacturing. Indianapolis's manufacturing sector was negatively affected by losses in the electrical equipment industry, with the closing of Western Electric being the most significant. Loss of high-paying manufacturing jobs, in turn, affected household incomes and, therefore, reduced the rate of increase in nonmanufacturing employment compared to what it would have been.

Table 2
Compounded Annual Rates of Employment Change over Business Cycle Expansions, 1975-79 and 1982-85, and Recent Year for Indianapolis Metropolitan Area

Sector	*Compounded Annual Rate of Change*	*Sector*	*Compounded Annual Rate of Change*
Total employment		Wholesale trade	
Dec. 1975-Dec. 1979	4.2	Dec. 1975-Dec. 1979	6.4
Dec. 1982-Dec. 1985	3.9	Dec. 1982-Dec. 1985	3.5
Dec. 1984-Dec. 1985	2.9	Dec. 1984-Dec. 1985	3.5
Manufacturing		Retail trade	
Dec. 1975-Dec. 1979	1.8	Dec. 1975-Dec. 1979	4.5
Dec. 1982-Dec. 1985	0.5	Dec. 1982-Dec. 1985	4.4
Dec. 1984-Dec. 1985	−4.1	Dec. 1984-Dec. 1985	4.0
Durable manufacturing		Finance, Insurance, and Real estate	
Dec. 1975-Dec. 1979	1.8	Dec. 1975-Dec. 1979	4.0
Dec. 1982-Dec. 1985	0.9	Dec. 1982-Dec. 1985	2.4
Dec. 1984-Dec. 1985	−5.4	Dec. 1984-Dec. 1985	3.5
Construction		Services	
Dec. 1975-Dec. 1979	10.1	Dec. 1975-Dec. 1979	7.0
Dec. 1982-Dec. 1985	10.1	Dec. 1982-Dec. 1985	7.3
Dec. 1984-Dec. 1985	7.7	Dec. 1984-Dec. 1985	6.4

Where have employment changes recently occurred? **Table 2** presents compounded annual rates of change over two expansions, 1975-79 and 1982-85, and the most recent year, 1985, for the Indianapolis metropolitan area by selected sectors.

Total establishment employment growth rates were similar over the two expansions, with a slowdown last year. A reason for the slowdown was durable goods manufacturing. The smaller rate of increase in durables during 1982-85 reflects increased foreign competition and appreciation of the dollar, both of which have created a much more competitive environment for Indianapolis manufacturing. As 1986 progresses, the fall in the dollar should increase manufacturing export demand and result in some employment expansion.

Construction is highly cyclical and therefore shows large employment swings. Rates of growth during both expansions have been similar. Several commercial and public projects should maintain construction employment.

> *Mortgage rates should remain attractive, and single-family housing should enjoy a good year. As people move from apartments to single-family housing, vacancy rates for apartments may edge upward from the 9% level in February.*

What about residential construction? If the national economy performs above trend in 1986, then monetary restraint to bring the economy back to trend might result, in the short run, in higher interest rates. However, since long-term inflationary expectations will remain low, the upward pressure should occur at the short-term end of the interest rate yield curve. Thus, mortgage rates should remain attractive, and single-family housing should enjoy a good year. As people move from apartments to single-family housing, vacancy rates for apart-

Table 3
Composition of Employment Change for Indianapolis Metropolitan Area, 1974-85 and March 1985-March 1986, by Major Sector

	1974-85		*March 1985-March 1986*	
Sector	*Number*	*% of Change*	*Number*	*% of Change*
Contracting sector				
Manufacturing	−24,300		−3,498	
Durables	−20,800	86	−3,042	87
Nondurables	− 3,500	14	− 456	13
		100		100
Expanding sectors				
Nonmanufacturing	111,000		19,649	
Construction	3,100	3	1,800	9
Transportation, Communications, Public utilities	4,700	4	840	4
Wholesale trade	7,400	6	1,578	8
Government	8,700	8	2,185	11
Finance, Insurance, and Real estate	8,800	8	1,447	8
Retail trade	26,100	24	4,512	23
Services	52,200	47	7,287	37
		100		100

ments may edge upward from the 9% level in February.

Wholesale trade employment growth was greater during the 1975-79 expansion than it was during the 1982-85 expansion. Retail trade employment growth rates have remained essentially the same. Finance, insurance, and real estate have come back in the last year of the recent expansion from the difficult times insurance had earlier in the recovery.

The services sector, which is not cyclical like construction, has shown high rates of growth. Business services, auto repair, and legal services have shown high *rates* of growth, and business services and health services (not hospitals) have shown large growth *in numbers*.

The Building City

The bricks-and-mortar changes in the Indianapolis skyline are highly visible. Those changes are based on activities that require office space and households that require residential space, factors which, in turn, are derived from employment and population change.

> *From 1980-84, metropolitan population grew faster than nonmetropolitan population. The turnaround arose from the metropolitan population's maintaining the same rate of growth in the 1980s as it had in the 1970s, while population growth in nonmetropolitan areas slowed considerably.*

During the 1970s, nonmetropolitan population nationally grew faster than metropolitan population. However, from 1980-84, metropolitan population grew faster than nonmetropolitan population. The turnaround arose from the metropolitan population's maintaining the same rate of growth in the 1980s as it had in the 1970s, while population growth in nonmetropolitan areas slowed considerably.

The high growth-rate sectors of services, retailing, and construction (as shown in Table 2) in many cases are oriented to urban locations and, as shown in **Table 3**, the growth rates translate into thousands of people.

What do the numbers mean? The job losses in manufacturing have hit black men heavily. Coupled with a higher rate of labor force growth for black men, the result has been a mismatch in supply and demand. The mismatch has had serious implications for the income and well-being of black families. Some analysts suggest that limited economic opportunities for black men are a major factor in the prevalence of female-headed households and in the high incidence of poverty among black children.

The numbers in Table 3 reflect the evolution of an economy from one where the blue-collar/factory work culture is being modified by a white-collar/office work culture—one where highly standardized outputs using mass production techniques are being replaced by rapidly changing, highly customized goods and services. Manufactured goods are *not* becoming obsolete. Rather, an increasing share of the value added of final goods and services is being created from indirect, white-collar work involving advertising, business consulting, research and development, and financial services (thus creating demand for office space), rather than from direct production work, which is being rapidly automated (thus resulting in increasing vacancy rates for manufacturing space).

What are the implications for skills and education? In a manufacturing economy, almost anyone was employable if she or he were willing to work. In a service economy, this is not the case. Thus, those left behind in the educational system are likely to find it difficult to enter the labor market.

The Federal Budget: A Major Uncertainty

A major uncertainty in this forecast is the federal budget. In the calendar year 1985, a switch was made to a tighter fiscal policy when the Administration and Congress reached an agreement on a significant moderation in spending and the Gramm-Rudman deficit reduction legislation was adopted. However, the assumptions of the budget are heroic in terms of stable policies and sustained strong growth. Further, no allowance is made for contingencies. Monetary policy has become accommodative, but in 1985 there was less bang for each additional dollar because velocity fell. Stability is assumed, but the recent track record suggests volatility. ☐

Fort Wayne

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The future of the Fort Wayne metropolitan area economy for 1986 remains bright. In fact, the performance year to date, combined with the planned start-up of the new General Motors truck-assembly plant this fall, suggests the likelihood of an even higher level of economic activity for the year than originally forecast.

According to recent revisions of the Fort Wayne area payroll employment data, economic growth in both 1984 and 1985 was greater than first indicated. Based on quarterly reports filed by all employers, estimates of employment through December 1984 and December 1985 were revised upward 3,000 and 1,300, respectively. The **Figure** shows the profile of growth for the current expansionary cycle for the Fort Wayne area compared with the Great Lakes (Illinois, Indiana, Michigan, Ohio, and Wisconsin) region. Employment growth in the Fort Wayne area has exceeded growth in the Great Lakes region in each of the last three years.

Total nonagricultural payroll employment in the Fort Wayne area—Allen, DeKalb, and Whitley Counties—was originally forecast to increase approximately 4% in 1986 (Nov.-Dec. 1985 *IBR*). Although the forecast is comparable with the 3.1% growth experienced in 1985 employment, there is evidence that it should be increased one to two percentage points. First, the annualized growth rate for 1985 is misleading. Growth stagnated during the first half of the year and accelerated during the second half. During the fourth quarter of 1985 and the first quarter of 1986, area employment has been growing in excess of 5% annualized.

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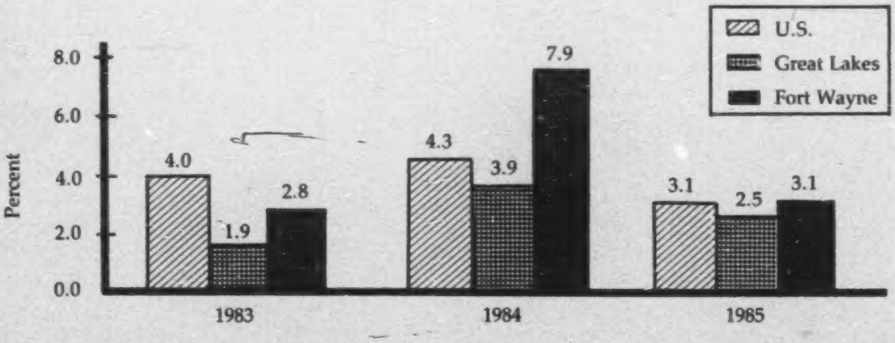
Second, GM is just starting to gear up to reach a projected employment of 1,700 by this fall. Plans are to add an additional shift later to bring employment to 3,000 by the summer of 1987.

Third, it is now clear that most of the GM employment will be transfers, not local hires; therefore, the multiplier effect of the GM employment on total employment is going to be relatively large. The local housing market provides the classic example of this multiplier effect. Vacant rental housing is reportedly not available; consequently, the pace of both rental and owned housing construction is exuberant. For example, the number of building permits issued for new single-family houses in Allen County in February was the highest in the last 19 years for which data are available. ☐

Percentage Change in Nonagricultural Payroll Employment for the U.S., Great Lakes Region, and Fort Wayne Area 1983-1985



Note: The Great Lakes region comprises Illinois, Indiana, Michigan, Ohio, and Wisconsin.
Source: U.S. and Great Lakes region data are from *Employment and Earnings*, U.S. Department of Labor. Fort Wayne metropolitan area data are from the Indiana Employment Security Division.

Richmond

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Director, Center for Economic Education, Indiana University East

Richmond and surrounding areas in Wayne County continue to experience some of the beneficial effects of the current national economic expansion. The housing industry, for example, is benefit-ing from falling mortgage interest rates made possible by the Fed's loosening of the money supply and by the Federal Housing Authority's new allocation of funds. Lower-cost loans, both variable and fixed, make increased activity in the real estate business relatively attractive.

Lower-cost loans are creating similar results in retail trade, especially in automobiles and recreational vehicles. The creative financing packages offered by General Motors, Ford, Chrysler, and American Motors provide consumers with the necessary incentives to make new purchases. Falling gasoline prices further fuel such incentives.

Moreover, the fears of terrorism and a declining dollar have cut tourism in Europe considerably. Consequently, more Americans, including local residents, are expected to spend their summer vacations in the United States, sampling a rich menu of natural beauty, historical record, culinary joy, and serene life. Vacationers, aided by lower inflation and higher personal incomes, will tend to spend more as they get away from the humdrum of daily toil. The Wander Indiana campaign, aimed at boosting Hoosier tourism, may show some strong gains, too.

In Richmond, the opening of the Radisson Hotel and the upcoming Rose Festival in June and July are likely to attract many tourists. This means that the service industry, particularly accommodation and catering, can expect accelerated business in the summer months. The service industry is expected to play an important role in the overall economic development of Wayne County and east central Indiana.

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The outlook for the manufacturing sector is not so exuberant as that for the retail and service sectors. Some firms are experiencing soft to stable demands for their products because of the national slowdown in manufacturing activities. The local economy is highly intertwined with the transportation industry. The inventory buildup of automobiles by Detroit producers is generating this adverse side effect, which may change in the fourth quarter. Thus, the unemployment rate is likely to hover around 9% unless it is offset by intra-growth in manufacturing and/or growth in tertiary activities. □

South Bend/ Mishawaka— Elkhart/ Goshen

John E. Peck

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Economic activity in the South Bend/Mishawaka and Elkhart/Goshen communities at midyear reflects the relatively good conditions experienced in the nation as a whole. Although the record is somewhat spotty, particularly in South Bend/Mishawaka, the 1986 area forecast (*IBR*, Nov.-Dec. 1985) calling for a period of modest growth appears, thus far, to be an accurate reflection of prevailing conditions.

The **Table** summarizes various indicators of local economic activity for the South Bend/Mishawaka and Elkhart/Goshen communities as tracked by Indiana University at South Bend's Bureau of Business and Economic Research. The figures contained in the table are seasonally adjusted and, with the exception of the unemployment rates and real estate data, are index numbers expressed as a percentage of base-year values. Comparative index numbers are given for January and February 1986. To highlight trends, index numbers are also given for a February 1986 to February 1985 comparison.

South Bend/Mishawaka

A short-term view of South Bend/Mishawaka area performance suggests a leveling off in February of employment gains realized in recent months. These gains pushed the nonagricultural employment index in January to the highest level attained in the three decades that data have been reported by the BBER. This short-term accomplishment, however, disguises the fact that the record-setting employment level was achieved entirely by a long-term increase in nonmanufacturing employment.

The manufacturing employment indicator rests in February at only slightly more than three-quarters of its 1967 base-year value. The loss of manufacturing employment in the community is a continuing phenomenon that reflects the phaseout and loss to the area of many major local manufacturing firms.

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Another relatively short-term development has been the strength of South Bend/Mishawaka's housing and real estate sectors. The area is sharing in the nation's housing resurgence, itself a predictable result of the current favorable interest rate environment. Local indicators of housing permits issued and real estate data covering average days listed and the percentage of sale to list price are at their most favorable post-recession levels.

Elkhart/Goshen

A review of the Table highlights the short-term leveling off experienced in the Elkhart/Goshen February 1986 to January 1986 comparison. All employment and energy sales indicators were down.

On the other hand, the year-to-year comparison reflects a clearly positive trend. The nonagricultural employment index, up nearly 4% for the 12 months, is only seven-tenths of a point below its January 1986 historic high.

The indicator of housing permits issued shows accelerated activity for both the short and the longer term. In a related Elkhart County industry, shipments of manufactured housing are also up. A recent press release points out that, while the number of housing manufacturers in the Midwest has decreased by one-third since 1980, production at the remaining firms has increased by more than 16% in the same period.

Outlook

The general consensus is that favorable conditions should continue nationally throughout 1986. Such a forecast bodes well for the South Bend/Mishawaka and Elkhart/Goshen economies. Completion of the Bendix phaseout, however, will continue to hold manufacturing gains in check, and AM General's prolonged shutdown due to

Selected Economic Indicators for South Bend/Mishawaka and Elkhart/Goshen
(Seasonally Adjusted Indexes: 1967 = 100)

	South Bend/Mishawaka					*Elkhart/Goshen*				
				% Change from					*% Change from*	
	February 1986	*January 1986*	*February 1985*	*January 1986*	*February 1985*	*February 1986*	*January 1986*	*February 1985*	*January 1986*	*February 1985*
Employment data										
Nonagricultural employment	119.2	119.2	115.7	.0%	3.0%	171.5	172.2	165.1	- .4%	3.9%
Manufacturing employment	76.5	77.8	77.5	- 1.7%	- 1.3%	156.0	157.1	149.8	- .7%	4.1%
Nonmfg. employment	143.2	143.0	136.9	.1%	4.6%	194.2	194.6	187.4	- .2%	3.6%
Unemployment rate	6.0	6.4	8.6	n/app	n/app	5.4	5.7	7.4	n/app	n/app
Help wanted advertising	101.1	109.2	101.6	- 7.4%	- .5%	–	–	–	–	–
Utilities										
Industrial electricity sales	153.4	165.9	152.0	- 7.5%	.9%	198.5	207.9	198.0	- 4.5%	.3%
Commercial gas sales	133.5	164.3	151.8	-18.7%	-12.1%	173.2	198.9	117.4	-12.9%	47.5%
Industrial gas sales	79.5	97.4	91.0	-18.4%	-12.6%	298.6	308.7	318.6	- 3.3%	- 6.3%
Retail car and truck sales										
New passenger car sales	102.4	105.6	111.7	- 3.0%	- 8.3%	108.8	88.4	83.5	23.1%	30.3%
New truck sales	229.4	204.6	232.8	12.1%	- 1.5%	105.8	95.6	120.3	10.7%	-12.1%
Housing construction data*										
Estimated value of permits	830.4	761.3	239.3	9.1%	247.0%	279.8	288.3	220.9	- 2.9%	26.7%
Number of permits issued	175.7	147.5	60.5	19.1%	190.4%	142.2	121.0	83.2	17.5%	70.9%
Average value per permit	478.1	525.0	394.5	- 8.9%	21.2%	214.8	293.2	273.8	-26.7%	-21.5%
Residential real estate data**										
Number of active listings	1133	1050	1268	7.9%	-10.6%	1081	1035	1074	4.4%	.7%
Closed sales:										
Average days listed	62	65	75	- 4.6%	-17.3%	96	95	112	1.1%	-14.3%
Average market price	$48,336	$47,176	$43,228	2.5%	11.8%	$51,567	$51,351	$44,905	.4%	14.8%
% of sales to list price	94.4	94.2	92.8	.2%	1.7%	94.0	95.0	94.5	- 1.1%	- .5%

* All Elkhart construction data have a base year of 1970.
** Real estate data are not index numbers but are unadjusted weekly averages.
Source and definitions of data are available on request.

Hummer insulation problems poses a question mark.

In Elkhart, the critical factor is RV demand. Most forecasters see a good year in 1986, with interest rates and gasoline prices low and personal income increasing.

Given this general outlook, we expect South Bend/Mishawaka to experience 1986 employment gains in the range of 1% to 2%, while Elkhart/Goshen will see increases of from 3% to 4%. Both gains would push local activity to new highs. ☐

Muncie/ Anderson

Robert R. Jost

Professor of Economics, Ball State University

Attempting to thwart the national trend toward suburban sprawl and downtown decay is no mean task, but some dedicated citizens and officials of Muncie are trying to ensure that their city will not end up a suburban sprawl around nothing.

To this end, the Ball Foundation has made a major commitment to start construction of an $8-million cultural center, picturesquely located on a bluff overlooking the White River near the northern terminus of the downtown area. Many economists overlook the connection between amenities and economic development, but the potential for such a complex to draw people from east central Indiana and thereby create business for Muncie is very real. The center is aimed at enlarging the public's understanding of the experiences and the customs—the values and ideas, the cultural heritage—of people living in east central Indiana. The facility will provide an auditorium for the performing arts in an aesthetic setting, not unlike the much heralded Tanglewood in Massachusetts, as well as gallery space for industrial history projects and a gallery for local and traveling art exhibits.

Paralleling and complementing the cultural center complex is an endeavor to renovate and expand the historic downtown Roberts Hotel, to be operated under a franchise agreement with the Radisson Corporation. Additionally, a new Convention Center is to be built in the former federal building across the street from the Roberts Hotel. This hotel project has had several false starts over the years, but it now appears to have the backing of some of Muncie's most influential patricians as well as an investment banker's firm commitment to buy and market the necessary industrial revenue bonds. The Convention Center thus goes hand in hand with the hotel renovation, and city officials have conducted a marketing feasibility study to ascertain the potential demand for the planned exhibition hall and adjacent conference rooms. Both private and public revenues will finance the Convention Center.

Obviously adjacent hotel accommodations complement the Convention Center, and both should provide Ball State University with broader convention opportunities. The hotel would also supply the cultural center's demand for room accommodations. Nevertheless, the hotel and Convention Center appear to be relatively risky ventures.

Almost two decades have transpired since Muncie Foresight, a dedicated group of local citizens, initiated a plan for the revitalization of downtown Muncie. That plan recognized Ball Stores and J.C. Penney as major retail anchors at the southern terminus of the downtown shopping area, and it made provision for a new department store to be located at the northern limit of the retail district adjacent to the newly constructed Delaware County Courthouse. The plan also called for an inner-loop street pattern for vehicular traffic, off-street parking towers, and the creation of a pedestrian mall that subsequently would be enclosed and air-conditioned.

The pedestrian mall and the inner loop traffic pattern were completed, but the parking towers were never constructed and the mall was never enclosed. The width of Walnut Street once had been determined by the distance required to turn a horse and buggy around. As a consequence, the pedestrian mall was narrow although relatively attractive. However, the mall did little to stem the exodus of retail stores. The national trend of movement from city to suburbs continued apace in Muncie as new discount stores opted to build in shopping plazas located on the city's metropolitan fringes, rather than anchoring the northern limit of the downtown shopping district.

The very year Muncie Foresight announced its plan to rejuvenate the downtown area, Sears decided to close its downtown store and build a much larger outlet in the newly enclosed mall located on the fringes of the city. Other retail outlets, including Penney's, subsequently joined the exodus to the peripheries of the city. During these years, walking past the legions of vacant storefronts was akin to viewing the ruins of a once thriving ancient civilization.

What was left following the exodus of this once viable retail trade? Government employees filled the government buildings, and their agencies spilled over incongruously into vacated store fronts. Employees of Muncie's financial intermediaries are still centered in the heart of the city, but many of their transactions are now recorded in branches located in outlying neighborhoods. Omnipresent lawyers gain a respectable appearance by inhabiting old buildings with new façades, while less prestigious quarters are occupied by loan companies and retail jewelers.

The probability of drawing customers downtown is probably much greater if, for example, the downtown area contains several major apparel or shoe outlets rather than, say, one of each.

Why haven't the jewelry stores departed for the suburbs? There are competing jewelry stores in the large enclosed Muncie Mall, although the largest recently shut down for reasons not solely economic.

The fact remains that when many Muncie residents shop for jewelry, they continue to shop downtown. They have good reason. Several reputable jewelry establishments located in close proximity allow for comparative shopping. In short, the probability of drawing customers downtown is probably much greater if, for example, the downtown area contains several major apparel or shoe outlets rather than, say, one of each. But how does one get several apparel or shoe stores to venture where one alone frequently has trouble surviving?

Several parking lots (not ramps) have gone up, and vehicular flow-through and parking on the pedestrian mall are now permitted. New financial buildings are replacing the old. Nevertheless, retail businesses continue their exodus from the downtown area. The sole remaining downtown department store just recently announced its formal closing, although two branches continue to operate in outlying areas.

A successful entrepreneurial city must be willing to take risks associated with innovation and share power with the private sector in order to facilitate economic development.

Given this historical perspective, the hotel and Convention Center appear to be risky ventures. But a successful entrepreneurial city must be willing to take risks associated with innovation and share power with the private sector in order to facilitate economic development.

Of course, it can be argued that the functions of the downtown area have changed in accordance with the principles of supply and demand and that the retail businesses have gravitated to more profitable locations. Thus, where once a department store was planned to anchor the northern terminus, a large combined city-county security complex may be built, once legal obstacles are removed. In short, is the downtown area to function primarily for government, finance, and legal services?

Be that as it may, it is the downtown area that makes the first visible impression on visitors or company representatives who are contemplating locating in the city. Are they likely to be impressed by rows of vacant store fronts and the absence of pedestrians bustling about?

By contrast, Indianapolis has been most successful in rejuvenating its downtown area while retaining some of its retail business. Is it so surprising that John Naisbitt ranked the capital as one of the ten best cities in the nation in which to start a new business, or that the Bureau of Economic Analysis projects that Indianapolis will be among the top five cities in the nation in terms of personal income growth during the next fifteen years? (For the BEA's Muncie and Anderson MSA projections, see the Nov.-Dec. 1985 issue of the *IBR*.)

Horizon 91, the successor to Muncie Foresight, is obviously aware of Indianapolis's successes. It proposes to harness the best resources of the community in order to promote the economic development of the area. For Muncie, it is no longer a question of preserving the status quo, for the downtown economic base will continue to erode unless the community acts.

These projects are not being financed by Washington but by a partnership between business and city officials with a vested interest in providing efficient and effective management for the enterprises to succeed. These officials also recognize that servicing the needs of the east central Indiana citizenry requires easier access to Muncie than is afforded by a two-lane highway. City officials are currently in the throes of eliminating the remaining legal obstacles that block the construction of a four-lane connecting link to I-69.

Anderson

Anderson's downtown renewal scenario over the past two decades is quite similar to Muncie's in both timing and end results.

Like Muncie, Anderson's downtown mall renovation presents a panorama of vacant storefronts interspersed with undercapitalized ventures—the ghosts of a previously vibrant business community. While both Muncie and Anderson have demolished a goodly number of decaying buildings, Anderson has outperformed Muncie in this regard. Perhaps more than a third of the buildings that formed Anderson's downtown silhouette in 1960 are no longer there. However, unlike Muncie, Anderson planners made a frontal assault on the ubiquitous downtown parking problem by building two parking garages with ramps. Unfortunately, one of them recently has been closed because of structural defects.

Currently a $1-million project to improve the downtown river area is underway. It is hoped that additional investments in the project will follow this seed money.

The Anderson MSA is certainly not standing still. Reports from construction personnel indicate that construction in Madison County is the highest it has been in several years.

Just as Muncie's growth now appears to be centered along the McGalliard connecting link to I-69 in the northwestern periphery of the city, so Anderson's current growth is primarily oriented around its outer perimeter near I-69 and Scatterfield Road—adjacent to GM's new Magnaquench plant.

The Anderson MSA is certainly not standing still. Reports from construction personnel indicate that construction in Madison County is the highest it has been in several years. Pendleton and Elwood have major projects underway. Anderson has several apartment complexes, fast food outlets, shopping centers, and drug stores under construction in addition to a host of other building improvements. But how many of those apartments will be filled by tenants who not only shop in Indianapolis but work there as well?

If this analyst's relatively dire projections of continued large reductions in General Motors' Anderson employment are realized, is it not possible that, in the not too distant future, Anderson may become a satellite suburb, swallowed by Indianapolis? ☐

Terre Haute

Marvin Fischbaum

Professor of Economics, Indiana State University

When asked to explain his "portfolio selection theory," for which he won the Nobel Prize, economist James Tobin said, "Don't put all your eggs in one basket."[1]

Diversification reduces the risk of really dreadful outcomes. Ten years ago the very diversity of the Terre Haute manufacturing base seemed to provide insurance against a severe economic collapse. But improbable events do occur. A Challenger spacecraft can explode. A Chernobyl reactor can melt down. Ann Page, Stran Steel, CBS Records and Tapes, Midland Glass, Terre Haute Malleable—a cross section of the medium and large manufacturing plants in the community—can shut down.

Add J. I. Case to that list. That firm, which employs 460 and provided 800 jobs in better days, announced that it will phase out Terre Haute operations during the first half of 1987. The Case announcement came as the area appeared to be coming out of a brief slowdown, just when near to intermediate term prospects appeared to be improving.

Six months ago, as employment levels appeared to be growing at an unsustainable rate, the Terre Haute economy faced the prospect of a difficult 1986. What had appeared to be an inexplicable disparity in 1985 between rather robust gains in area employment and apparent flatness in underlying business has been largely resolved by sharp downward revisions in employment estimates. Last fall, the preliminary estimate had establishment employment in the four counties of Clay, Vigo, Sullivan, and Vermillion rising by a sharp 13%, from 69,700 in January 1985 to 78,185 in September. Benchmark revisions reduced employment to 68,110 for January and 73,290 for September, which amounts essentially to a seasonal 8% increase.

Since labor force estimates have been reduced almost as much as employment estimates, revisions in the unemployment rate have been relatively modest. The preliminary September seasonally adjusted rate for the MSA had been 6.8%; the revised rate is 7.3%. By February 1986, the preliminary seasonally adjusted unemployment rate for the MSA rose to 7.9%

The **Figure** may help place these developments in perspective. The change in establishment employment from the level of 76,960 employed in September 1979 is plotted at six-month intervals from March 1979 to March 1986. Had the preliminary estimate for September 1985 been plotted, it would have been off the top of the scale. The chart suggests that seasonal factors in area employment may recently have become more pronounced. If so, then over the past three years the trend in employment has been flat.

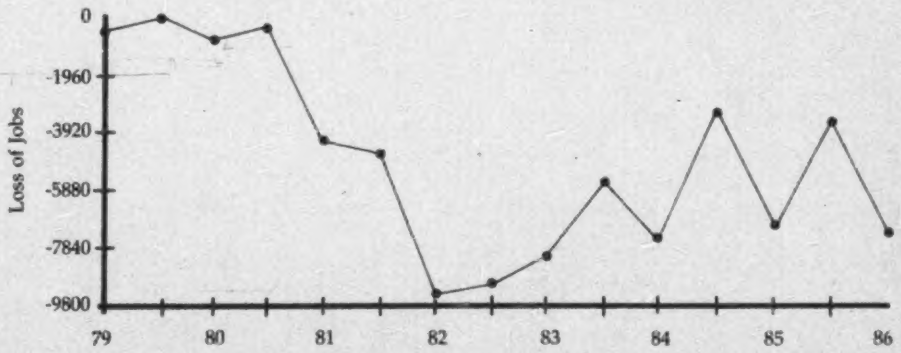
Construction activity also experienced some decline. For the first quarter of 1986, F. W. Dodge reported that residential contracts dropped 11% and nonresidential construction fell 40%. The value of construction permits in Vigo County also dipped. In the nonresidential sector, a variety of ventures in the $250,000 range could not offset the absence of any major new project.

In the residential sector, the apartment boomlet abruptly stopped. Single-family new home construction remained depressed until April, when permits for 23 homes on scattered sites provided the highest monthly total in several years. Sales of existing homes, responding to sharply lower interest rates, did rise. Inventories of homes for sale remain at near record levels, however, and any price increases have been slight.

Construction activity will pick up in the second half of 1986 and probably into 1987.

Construction activity, though, will pick up in the second half of 1986 and probably into 1987. Renovation of the main classroom building at Rose Hulman Institute of Technology and construction of the new health sciences and physical education

Changes in the Terre Haute MSA Four-County Employment Figures (Vigo, Clay, Sullivan, and Vermillion Counties) from September 1979



Source: *Labor Force Estimates*, Indiana Employment Security Division, Labor Market and Statistical Services, Indianapolis, Indiana, April 3, 1986.

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[1] *Newsweek*, Oct. 26, 1981, p. 62.

building at Indiana State University have just begun, as has expansion at Bemis Bag. That $8-million project at Bemis should lead eventually to the creation of 75 to 100 production jobs.

Spectrum Ink, attracted by the presence of Ivy Hill, is coming to town, initially with 25 jobs. (Ivy Hill Packaging, which also started small, was in turn attracted by the proximity of the now departed Columbia Records plant.) A projected expansion at Ivy Hill may add 100 to 150 manufacturing jobs.

The main growth point in the local economy remains Sony's DADC. When the plant opened in September 1984, it produced 300,000 compact audio discs per month. By the start of 1986, production was up to 1 million discs per month. By the end of the year, that production rate should double. Present plans call for redoubling output in 1987.

The main growth point in the local economy remains Sony's DADC. When the plant opened in September 1984, it produced 300,000 compact audio discs per month. By the start of 1986, production was up to 1 million discs per month. By the end of the year, that production rate should double. Present plans call for redoubling output in 1987. From its initial 90, employment has increased to its present 300 and may possibly go up to 600. The Sony facility remains the only plant of its type in the U.S. and one of only twelve in the world. U.S. sales of compact audio discs (Terre Haute and imported) were:

1983—$ 17,000,000;
1984—$103,000,000; and
1985—$320,000,000.

Estimates are that by 1990 worldwide sales of laser discs for audio, video, and data storage purposes might total four billion dollars. While growth is breathtaking, the Terre Haute monopoly will not last long. A joint venture of DuPont and Phillips Nv. will build in North Carolina, and Capitol-EMI, Warner, and—yes—CBS are planning, or at least considering, their own entries.

J. I. Case, a subsidiary of Tenneco, produces agricultural and construction equipment. The local plant makes loaders. A year ago Tenneco acquired the divisions of International Harvester that produced competitive products, creating redundant capacity. This year, with declining petroleum prices eroding Tenneco's main source of profits, cost-cutting measures were sought.

Tenneco is closing three of its twelve J. I. Case plants. It is not clear why Terre Haute is included. Recently Case lost an $8-million Department of Defense contract to Fiat-Allis of Italy. The people of Terre Haute received national attention when they supported Case by writing more than ten thousand letters to Washington. Congress overruled the DOD, but the contract will have no effect on Terre Haute production.

Over the next 18 months, prospective gains in employment at Sony, Bemis, Ivy Hill, and elsewhere should compensate for the loss of jobs at J. I. Case, although possibly not for the loss of payroll. In today's somewhat positive economic environment, the Case plant closing should not have the devastating impact of say, CBS, but it will hurt! ☐

Lafayette

William C. Dunkelberg

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Overall, the economic environment in the Greater Lafayette area is excellent. The current unemployment rate is 4.4%. Total employment stands at 61,400, up 1,000 from April 1985, up 700 from March, but unchanged from December 1985 (see **Table**).

Greater Lafayette Employment by Industry (in Thousands)

Industry	*April 1985*	*Dec. 1985*	*April 1986*
Manufacturing	11.3	11.4	11.5
Construction	1.7	1.6	1.6
Transportation	1.7	1.8	1.7
Wholesale	1.6	1.7	1.6
Retail	10.9	11.5	11.1
Financial	2.6	2.7	2.7
Service	10.3	10.4	10.4
Government	20.3	20.1	20.8
Total	**60.4**	**61.4**	**61.4**

The employment trends—flat, but at a high level—are reflected in other indicators of economic activity. Overall, retail sales, like employment, show very modest gains after adjusting for inflation, although the year is expected to end on an upbeat note. Employment in the manufacturing sector will remain steady throughout the year, reflecting continued strength in orders but no increases in demand.

Compared to a year ago, only the manufacturing sector shows slightly lower employment. Government (particularly educational services) has been a major contributor to employment growth over this period, accounting for about 50% of the net gain. Employment gains in all other industries were modest.

The outlook for construction is improving because of the expectation of major capital investment activity on the part of both new and existing firms in the area. Although this activity will improve the employment outlook for the next twelve months or so, the new investment will produce few new permanent jobs. Much of the investment is geared to cost reduction to maintain competitiveness in larger regional, national, and international markets.

Still, these factors combined mean positive employment growth in the Greater Lafayette area, and the outlook for the balance of the year remains an optimistic one. Growth will not be exceptional, but economic activity will remain healthy, supporting a high level of employment. ☐

Jeffersonville-New Albany (Louisville Area)

Fay Ross Greckel

Professor of Economics, Indiana University Southeast

The Louisville metropolitan area continued to grow slowly and unevenly during the past six months.

Employment data portray reasonably well the pattern of this less than vigorous expansion. Total employment in nonagricultural establishments within the seven-county metropolitan area (Clark, Floyd, and Harrison Counties in Indiana and Jefferson, Oldham, Bullitt, and Shelby Counties in Kentucky) increased from an average of 398,300 jobs in the first quarter of 1985 to 410,200 jobs in the first quarter of 1986. This was a respectable, though far from spectacular, twelve-month gain, but it still left the level of payroll employment below its 1979 peak.

Manufacturing employment remained weak, with a net loss of 3,500 jobs between the first quarter of 1985 and the first quarter of 1986. Most of the decline occurred in durable goods industries, particularly in firms producing machinery or transportation equipment. As usual, nonmanufacturing job growth more than made up for this decline. Nonmanufacturing employment during the first quarter of this year averaged 329,200, an increase of 18,600 jobs over the first quarter of 1985. Nearly two-thirds of these new jobs were in retail and wholesale trade, which added 6,400 employees, and in the service sector, which grew by 4,800 workers.

Between these same periods, total nonfarm employment in the Indiana portion of the metropolitan area remained virtually unchanged, averaging approximately 51,500. Small gains in nonmanufacturing employment failed to completely offset the loss of about 600 manufacturing jobs. This stagnant employment situation represents a significant departure from earlier trends in the three Indiana counties, which had previously enjoyed relatively stronger employment growth—including job gains in the manufacturing sector—than in the Kentucky portion of the metropolitan area. It is too early to tell whether or not employment in the Indiana counties will soon be returning to its prior growth path.

First-quarter building permit statistics suggest a slowdown in residential construction, particularly in new apartment units. The first four months of 1985 represent a very active period for residential building permits in Jefferson County (Ky.) and also in Floyd and Clark Counties (Ind.)—the three major counties of this metropolitan area. There was a substantial reduction in the number of residential building permits issued in these counties during the first four months of 1986, although permits for single-family dwellings were not very different from 1985.

Concern about the anticipated changes in federal income tax treatment of real estate investments will probably continue to discourage new rental projects.

Since apartment and condominium building is somewhat more sporadic than single-family construction, the picture could change during the rest of the year. However, concern about the anticipated changes in federal income tax treatment of real estate investments will probably continue to discourage new rental projects. Single-family housing should fare somewhat differently. With nominal interest rates lower than in previous years, coupled with some apprehension that they may rise in 1987, construction of single-family homes may accelerate.

In other sectors, the general prognosis for the remainder of 1986 is for more of the same: continued slow and uneven growth. ☐

Evansville

Maurice Tsai

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The Evansville economy grew at a modest rate in 1985. The Evansville Area Business Index registered 109.44 compared to 1984's 107.91, a growth rate of 1.4% (see **Table**).

The poor performance of the national economy was partially reflected in the performance of the local economy. The real gross national product increased by 2.23% in 1985, with slow growth rates of 1.1% and .7% in the second and fourth quarters respectively. The sluggishness of the 1985 national economy was caused by a decline in real investment, zero increase in labor productivity, and expanded trade deficits. The impacts on the regional economy were declines in the manufacturing and finance activities, the first time that such declines had occurred since the 1981-82 recession.

Other sectors in the regional economy, however, manifested some growth. The construction sector grew by 4.9% and the transportation sector by 4.3%. The trade and services sector has maintained its steady growth since 1982. The employment index rose by 2.9%, a repeat of 1984's performance. The unemployment rate was reduced from 9% to 7.5% by the end of 1985.

Compared to a very slow fourth quarter for the national economy, the Evansville economy showed an upward surge of activity, especially in November and December of last year.

The outlook for the local economy in 1986 needs to be revised from the earlier report (*IBR*, Nov.-Dec. 1985: 20-21). Compared to a very slow fourth quarter for the national economy, the Evansville economy showed an upward surge of activity, especially in November and December of last year. The momentum was still very obvious in the January and February statistics, the most recent data available.

The leading factor in this economic surge has been the construction sector. The City of Evansville is currently undertaking a huge improvement of the transportation network within and around the city. Within five years a new airport terminal and ten major road projects will be completed at a total cost of $290 million. The Lloyd Expressway, the east-west highway through the city, will be completed in 1988, and Interstate 164, a circular highway around the east and south of the city, will be completed by 1990. Both will cost more than $100 million. The completion of a $20-million airport terminal next year will make Evansville more accessible to other parts of the country. A large portion of these projects are commissioned from local construction firms so that the incomes generated from the projects stay within the community. The impact of these heavy construction activities has begun to be felt in the construction index, which is expected to rise 38% in 1986. Furthermore, the spinoffs will spread to most of the business sectors.

The impact of heavy construction activities has begun to be felt in the construction index, which is expected to rise 38% in 1986.

The industrial sector, which had a poor performance in 1985, will become more active this year. Whirlpool, on Highway 41, will increase its work force in the spring because of unexpected strong demand for refrigerators, partly due to the expansion in the housing industry. The Warrick operation of Alcoa recently adopted a new aluminum ingot casting method for more efficient production with lower costs. As a result of its corporate restructuring, the Bristol-Myers Company is moving 250 employees from Syracuse, New York, to Evansville. Sunbeam Plastic Corporation is planning a $15-million expansion project to raise its productive capacity. In mid-1986 the T. J. Maxx Company is to begin operation, with a maximum employment of 1,800. These new developments will result in raising the industrial production index to the 120 level, compared with 113.4 in 1985.

The local employment situation should continue to improve in 1986. The Evansville MSA (three counties in Indiana and one county in Kentucky) had an employment of 122,400 in January 1985 and 129,000 in the same month of 1986. Based on the seasonal pattern, the total employment is expected to rise in the months ahead. The unemployment rate in Evansville is still high. It was 7.8% in February 1986, while the national rate was 7.3% and the state rate 6.9%. The reduction in the unemployment rate in 1985 was a result of two factors:

- Reduction in the size of the local labor force; and
- An increase in job opportunities.

Judging from the activities in the first quarter, the Evansville economy will have a good year in 1986. Its annual growth rate may be the highest since the 1981-1982 recession.

As more jobs are expected to open in the months ahead, the unemployment rate should go down to around 7% or less.

Judging from the activities in the first quarter, the Evansville economy will have a good year in 1986. Its annual growth rate may be the highest since the 1981-1982 recession. The Evansville Area Business Index is expected to rise from 1985's 109 to 115, a growth rate of 5.5%. ☐

Evansville Area Business Index
(1977 = 100)

Period	Industrial Production	Trade & Services	Construction	Transportation	Finance	Employment	Composite Index
Quarterly Index							
1984/1Q	120.00	106.05	104.58	95.18	105.03	103.23	109.63
1984/2Q	114.52	104.70	108.09	94.11	106.40	102.07	107.47
1984/3Q	111.17	106.12	100.73	95.15	106.56	103.70	106.34
1984/4Q	114.27	107.18	101.24	95.69	106.65	106.04	108.21
1985/1Q	117.41	109.63	104.69	100.12	103.43	106.16	110.63
1985/2Q	112.18	109.27	103.92	98.43	103.97	105.40	108.45
1985/3Q	109.84	106.74	113.07	99.34	105.26	107.10	107.92
1985/4Q	114.23	109.83	113.11	98.74	108.51	108.64	110.77
1986/1Q	121.17	109.77	146.69	98.67	107.26	106.64	115.81
Annual Index							
1981	108.83	102.28	107.63	98.94	97.75	105.57	105.01
1982	104.52	102.36	103.62	93.23	102.40	102.85	102.64
1983	108.14	104.10	116.09	91.36	104.60	100.71	105.41
1984	114.99	106.01	103.66	95.03	106.16	103.76	107.91
1985	113.40	108.87	108.70	99.16	105.29	106.82	109.44
1986 (proj.)	120.50	111.80	150.00	101.00	107.50	108.50	115.50

Gary—Hammond—East Chicago (Calumet Area)

Leslie P. Singer

Professor and Coordinator of Economics, Indiana University Northwest

The question asked in northwest Indiana is, When will local manufacturing, particularly steel, stop laying off personnel and begin the economic turnaround that all other Indiana MSAs experienced two years ago? Indiana MSAs had their recessions in manufacturing in 1983. Except for northwest Indiana, all passed their lower turning points by 1984.

Taking yearly averages, communities rebounded in 1984 at the following rates:

Anderson	- 12.3%;
Elkhart-Goshen	-14.15%;
Evansville	- 9.52%;
Fort Wayne	- 9.49%;
Indianapolis	- 4.7%;
Lafayette	- 9.71%;
Muncie-Anderson	- 6.6%;
New Albany	-11.11%;
South Bend-Mishawaka	- 9.2%; and
Terre Haute	- 1%.

Contrary to the trend, northwest Indiana manufacturing on an adjusted year-to-year basis dropped 32.3% from 1979 to 1983, 7% from 1983 to 1984, and 8.9% from 1984 to 1985. On an adjusted basis, accounting for periodic fluctuation within the year, these declines amount to a total loss of 42.5% in manufacturing employment in northwest Indiana from 1979 to the end of 1985.

Other Indiana MSAs have experienced a few minor ups and downs in manufacturing employment and output, but only northwest Indiana has experienced an uninterrupted slide that continues to point downward.

What makes northwest Indiana different from other industrialized regions in the state? The answer is steel. Steel is peculiar because the product is purchased by other firms, not by consumers. Steel producers are oligopolies. They comprise an industry with few large sellers. The buyers of steel, particularly the customers of integrated mills such as those that operate in northern Indiana, are also oligopolies in their own right. Both General Motors and U.S. Steel have considerable market power. Both sellers and buyers are under pressure from foreign suppliers. Both are operating with high wage contracts and antiquated work rules. Moreover, foreign suppliers have the same production technology as do the mills in northwest Indiana.

Other Indiana MSAs have experienced a few minor ups and downs in manufacturing employment and output, but only northwest Indiana has experienced an uninterrupted slide that continues to point downward.

The market power of General Motors and other large steel customers exerts a downward pressure on prices. Other manufacturing industries that sell directly to consumers have a better chance to adjust their margins. Clearly a large number of widely dispersed small buyers cannot match the concentrated market power of large corporations.

There is no doubt that the steel industry should have realized this state of affairs a long time ago. In order to understand why the steel industry failed to innovate and thus adjust to the international challenge, we must distinguish between two kinds of technologies.

Factor-improving technologies, such as continuous casters (which reduce labor hours per ton of steel), make the factor of production—in this case, labor—more productive.

Product-improving technologies, such as electrolytic zinc-plating (which enhances the product's rust resistance), improve the product instead of merely improving its production.

Factor-improving technologies have relatively stable payoffs over the short run. Product-improving technologies, on the other hand, often exhibit uncertain payoffs over a much longer period.

In high-wage industries there is a bias towards factor-improving technologies. Here capital is a substitute for labor. In lower-wage industries, such as electronics and communications, there is a bias towards product-improving technologies, where labor is a complement of capital.

Steel managers found immediate and measurable rewards in factor-improving technologies. Thus, product-improving technologies, which would have given the steel industry a keener competitive edge, were neglected.

The computer industry is a prime example of judicious application of product-improving technologies. To some degree the automobile industry is another good example. As a general rule, industries that aggressively develop product-improving technologies are likely to be able to meet foreign competition head-on and can retain or even expand their share of global markets. This is not likely to be the case with industries such as steel, which still rely too heavily on factor-improving technologies, where the U.S. has no real comparative advantages.

Steel managers found immediate and measurable rewards in factor-improving technologies. Thus, product-improving technologies, which would have given the steel industry a keener competitive edge, were neglected.

Disinflation and changing inventory policies have also hurt local steel plants, which were used to shipping in bulk. When inflation was in double digits and higher than interest rates, firms made capital gains on accumulated inventory. With no inflation of product prices, real interest rates are

(continued on last page)

Table 1
Northwest Indiana Wage and Salaried Employment
(Adjusted Quarterly Rates in Thousands of Employees)

	Actual				Projected				
	1979	*1982*	*1985*	*1986/1Q*	*1986/2Q*	*1986/3Q*	*1986/4Q*	*1987/1Q*	*1987/2Q*
Manufacturing employment	103.8	77.2	60.4	60.2	60.4	60.6	60.3	60.1	60.0
Steel employment	66.6	52.7	37.6	37.3	37.1	37.1	37.0	36.9	36.9
Manufacturing less steel and petroleum	33.5	20.8	19.0	19.4	19.9	19.8	20.0	20.1	20.2
Nonmanufacturing employment	164.0	150.8	153.2	154.0	154.6	155.4	156.9	157.5	158.0
Services	41.2	38.8	41.7	43.3	42.4	42.6	43..3	44.0	44.1
Trade	53.4	47.3	47.6	48.1	48.5	48.9	49.1	49.8	49.9
Government	30.7	30.4	31.6	31.4	31.1	31.0	31.4	30.7	30.5
Total Employment	**267.8**	**228.0**	**213.6**	**214.2**	**215.0**	**216.0**	**217.2**	**217.6**	**218.0**
Private nonmfg. employment	133.3	120.4	121.6	122.6	123.5	124.4	125.5	126.8	127.5

Note: Numbers may not add to totals because of rounding.

Table 2
Northwest Indiana Actual and Projected Payrolls
(In Billions of Current or Constant 1979-Based Dollars: Annual Rates)

	Actual Payroll				Projected Payrolls				
	1979	*1982*	*1985*	*1986/1Q*	*1986/2Q*	*1986/3Q*	*1986/4Q*	*1987/1Q*	*1987/2Q*
Manufacturing									
In current dollars	2.161	2.318	1.769	1.779	1.783	1.693	1.683	1.659	1.635
In constant 1979 dollars	2.161	1.463	1.157	1.131	1.139	1.083	1.084	1.075	1.066
Steel									
In current dollars	1.451	1.558	1.188	1.190	1.191	1.183	1.181	1.172	1.179
In constant 1979 dollars	1.451	1.296	1.022	1.012	1.015	1.011	1.010	.991	.989
Manufacturing less steel and petroleum									
In current dollars	.753	.973	.695	.699	.692	.683	.678	.679	.661
In constant 1979 dollars	.753	.659	.372	.371	.369	.364	.365	.366	.355
Nonmanufacturing									
In current dollars	2.29	2.307	2.418	2.438	2.441	2.448	2.449	2.442	2.499
In constant 1979 dollars	2.29	1.919	2.080	2.071	2.081	2.089	2.082	2.080	2.084
Total									
In current dollars	4.451	4.625	4.187	4.217	4.224	4.141	4.132	4.101	4.134
In constant 1979 dollars	4.451	3.382	3.237	3.202	3.220	3.100	3.166	3.155	3.150

still high. This raises the cost of carrying inventory.

If local steel companies continue to experience diminished cash flows, very little new investment will take place beyond what is currently in progress. Thus, even if the U.S. economy accelerates its growth rate in the third and last quarters of 1986, this will not suffice for an upsurge in local manufacturing.

Moreover, the falling dollar will have only a minor impact on steel. Importers will switch from European imports to third-world imports. Third-world exporters tend to quote prices in dollars, which neutralizes the impact of favorable foreign exchange rates.

Table 1 shows northwest Indiana employment. **Table 2** lists payroll in both current and in 1979 dollars in order to show the trend in local income in dollars of constant purchasing power. Alas, few revisions have been made in the forecast. A robust upturn is still not in the cards.

Steel capacity in developing countries is growing at a rate of 8.1% annually. Annual U. S. steel consumption by 1990 will rise by only about 1 million tons. Minimills will take about 40% of total steel output, which will further debilitate steel plants in northwest Indiana. □

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